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ABSTRACT

Intended to accompany book 1 of the Rough Rock (Arizona) fourth grade Navajo social studies program, this guide is intended to help the teacher assist students through a series of learning experiences designed to develop important inquiry and social studies skills and to increase students' abilities to make generalizations about their community and the world at large. The guide combines the elements of highly structured, "cookbook" activities with "guided" activities in which only the suggestion for an activity is provided. Each lesson is built around the ideas presented in a chapter of the student textbook and reinforces the chapter's concepts and generalizations. Each lesson includes the following information: purpose, concepts, main idea, skills to be developed, objectives to be achieved, materials needed, suggested time, and teaching strategies and activities. The guide has a "built-in" evaluation system which determines the students' mastery of concepts and skills by their ability to successfully complete the instructional objectives listed for each lesson. The guide includes a section on the acquisition of and the organization and communication of facts and information, the development and presentation of thought-provoking questions, the development of tentative answers, the testing of questions, the remaining steps of inquiry, and social skills. (NQA)

ED228008

OUR COMMUNITY -- Today and Yesterday

Book One

Nihił Hahoodzodóó -- Dííjíjdi dóó Adą́ą́dą́ą́'

Naaltsoos T'ááłá'í Góne' Yits'ilígíí

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TEACHER'S GUIDE

Produced by
Title IV-B Materials Development Project
Rough Rock Demonstration School
Rough Rock, Arizona

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FOURTH GRADE NAVAJO BILINGUAL-BICULTURAL
SOCIAL STUDIES CURRICULUM

Our Community -- Today and Yesterday

Book One

TEACHER'S GUIDE

Written, Illustrated and Produced by
TITLE IV-B MATERIALS DEVELOPMENT PROJECT*

With the Assistance of Rough Rock Community Members

Stephen Wallace, Curriculum Consultant
Fred Bia, Materials Developer-Illustrator
Regina Lynch, Editorial Assistant
Teresa McCarty, Curriculum Specialist

Navajo Curriculum Center
Rough Rock Demonstration School
Rough Rock, Arizona 86503

1982

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Rough Rock School Board: Wade Hadley, Teddy McCurtain, Thomas James, Billy Johnson, Simon Secody; Jimmie C. Begay, Executive Director.

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ROUGH ROCK DEMONSTRATION SCHOOL
ROUGH ROCK, ARIZONA 86503

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Our Community -- Today and Yesterday

Nihił Hahoodzodóó -- Dííjíįdi dóó Adą́ą́dą́ą́

Book One

TEACHER'S GUIDE

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INTRODUCTION

This *Teacher's Guide* accompanies Book I of the Rough Rock fourth grade Navajo social studies program: "Our Community -- Today and Yesterday." The purpose of the guide is to help you, the teacher, assist students through a series of learning experiences designed to develop important inquiry and social studies skills. The ultimate aim of these learning activities is to increase students' abilities to make generalizations about their community and the world at large. Simultaneously, the program reinforces Navajo and English language, math and communication skills, while enhancing appreciation and respect for Navajo values.

The *Teacher's Guide* is not a "cookbook" for teaching, but combines the elements of highly structured, "cookbook" activities with "guided" activities in which only the suggestion for an activity is provided. This approach allows the teacher creative freedom but includes enough detail for those occasions when the teacher lacks sufficient time to devise extensive lesson plans.

Before using the *Teacher's Guide* in the classroom, it will be helpful to read the material entitled, "Inquiry and the Role of Questioning." This is a slightly revised version of the outline on inquiry and questioning which first appeared in the *Navajo Bilingual-Bicultural Second Grade Curriculum* produced by the Native American Materials Development Center (NAMDC), in 1980. Since Rough Rock's Navajo social studies program spirals from the NAMDC curriculum, the inquiry method forms a vital core of this program. Reading the information on inquiry will help you develop sound questions and expand upon many of the lessons in this guide. Through the inquiry process and teacher-assisted questioning, students will acquire numerous bilingual problem-solving skills. It is the philosophy of this social studies program that these skills are ultimately much more valuable than the ability to memorize sets of facts. In the long run, the problem-solving skills inherent in this curriculum will prepare students to function effectively in their increasingly pluralistic society.

It will also be helpful to read all the lessons and activities ahead of time so that you will have an overall picture of the program's direction and focus. Additionally, many activities require some advanced preparation and special materials. These should be gathered well in advance of the lesson or activity.

The *Teacher's Guide* takes the following format. Each lesson is built around the ideas presented in a chapter of the student textbook. The lessons reinforce the concepts and generalization(s) of the chapter. Through specialized activities, lessons extend concepts and generalizations to a broader context than is possible in the text, and develop skills and attitudes which are necessary for competent problem-solving. Finally, lessons enable you to present additional facts and other types of information which will broaden students' educational experiences.

Both the text and the lessons reflect two primary ideas. These are the "big" thoughts or relationships that students should recognize and develop by the end of the course of study. Do not "announce" these ideas to students, but post them in your notebook or on your desk and refer to them throughout the program. All lessons should be undertaken with these primary ideas in mind. The primary ideas for Book I are:

I. *When living things interact, they are changed.*

II. *Interactions between living things should be balanced (in harmony).*

In addition, each chapter of the text conveys at least one "main idea." The main idea for the chapter concerns one aspect of the ideas for the entire book. For example, the main idea for Chapter Two is, "In order to meet their needs for survival, people must understand and use the four elements." This idea is one part of the more general ideas above which involve the balanced interaction of living things. (For Chapter Two, this interaction is between man and nature.) Again, do not inform students in advance of the main ideas for each chapter, but allow them to discover these generalizations as they synthesize the facts in the text and their experiences during lessons.

Lessons are student-centered. Students are the main functionaires in each lesson. The teacher in most cases facilitates rather than controls the lessons. This reflects the inquiry approach, in which the student -- rather than being "given" everything -- is "forced" to ask questions, seek answers through experimentation and research, and then evaluate answers in light of the information. As students begin to develop these skills they will be enabled to make predictions and sensible responses rather than "wild" guesses and predictions. Initially, the teacher should not attempt to correct or redirect every inquiry, even though student responses seem completely wrong or misdirected. Through carefully selected questions and guidance, the teacher can help students discover reasons *why* their notions were incorrect. This is far more valuable than merely telling the student, "That is not right."

On Using the Textbook

The textbook which accompanies this *Teacher's Guide* is an integral part of this program. It is necessary, therefore, to make a few remarks about its use.

Many textbooks, regardless of how well they are written, are secondary sources of information; that is, the information they contain is second-hand -- gathered, interpreted, and presented by others. Such texts have a "built-in" flaw when used in an inquiry classroom where it is hoped that students will acquire, gather, interpret and use information on their own.

Occasionally, however, textbooks contain primary source material: photographs, direct quotes, diagrams, maps, documents, etc. These texts are far more useful. The text which accompanies this *Teacher's Guide* is of this type. Although the material in the text was rewritten for fourth grade students, the facts, figures and other information derive from interviews of Rough Rock residents. Hence, the textual material serves as a primary source.

While the text is unique in this way, it must be used carefully and with planning. Below are some suggestions for using the book and integrating it into the overall Navajo social tudies program for the fourth grade.

1) In many lessons the text serves as the primary source for information which is to be used in solving a problem or developing an idea.
   a) In cases where the textbook serves as the primary source, teachers should allow ample time for reading and comprehension.[1] If students have difficulty in reading, the teacher should develop a method for dealing with the problem. Taping the reading and allowing students to "read and listen," dividing the class into groups, enlisting the help of an aide, are some possibilities.

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[1] If students' first language is Navajo, it is preferable for them to read each chapter or assignment first in Navajo. Use of the two languages, however, depends on the teacher and composition of the student body. See No. 4 of this section and the subsequent section entitled, "A Word or Two About Language," for further discussion of this topic.

b) Teachers should test the students for comprehension.
c) The reading should occur during the lesson, after stating the objective of the reading to students.
d) Students should be instructed to ask about terms, phrases, or any part of the material which they do not understand.
e) Students should be instructed to take notes.

2) The textbook is also used as a source of background information for a lesson or activity, and to stimulate student research questions.
   a) In these cases teachers should prepare students by completely reviewing vocabulary, and posing a series of questions regarding aspects of the reading which they should "look for."
   b) Allow sufficient time for reading, as above.
   c) Don't use a "round-robin" approach for oral reading. Instead, ask a question, instruct students to find an answer in the reading, then read it aloud.

3) The textbook is sometimes used as a means of testing the validity of students' conclusions.
   a) When used in this manner be sure students have read as background information, those parts of the text which pertain to their conclusions.
   b) Give clues as necessary, but don't find the passage for students.
   c) Encourage the use of photographs, drawings, and diagrams.

4) The textbook is written in both Navajo and English. There is difficulty in this format depending upon your bilingual philosophy and that of your school. The use of both languages was included after considerable research and the interviewing of educators at Rough Rock and elsewhere. While this approach requires some additional decision-making by teachers depending on their needs and those of their students, it also provides greater flexibility in utilizing the text.
   a) If the lesson is conducted in Navajo encourage students to read the Navajo version first. Do this by demanding that whatever is read be read in Navajo.
   b) Follow the same procedure if the lesson is conducted in English.
   c) If the answer to a question or solution to a problem does not require reading directly from the book, ask students to respond in the same language used as the medium of instruction for the lesson.

5) Above all, *be consistent.* If students are expected to read and develop their ideas in Navajo first, follow this procedure throughout the course of study. Likewise, if English is the most appropriate medium of instruction, require students to first read the text in English, conduct questioning sequences in English, and transfer information and ideas into Navajo as necessary. The point is that the teacher must use a *uniform approach* in presenting material throughout the program.

6) The textbook is an important tool. Allow the students ample opportunity to become familiar with it.

A Word Or Two About Language

The Rough Rock fourth grade social studies program demands a great deal of students. Critical thinking is not an easy task. The teachers, therefore, should use language in a manner which is appropriate for the students and which will facilitate their ability to solve problems.

Most students in Rough Rock classrooms come to school with limited English language skills but with a solid foundation in hearing and speaking Navajo. English is generally the language of the classroom rather than the language of home and everyday use. This is particularly true for students in the lower elementary phases. Thus, it is generally preferable for lessons to be conducted (initially, at least) in Navajo. Transfer of the textual material and of skills and objectives can then be made into English.

The appropriate use of native and second languages is especially crucial in a social studies program such as this one, which emphasizes *values* and *affective skills* as well as other academic skills. It is the job of the teacher, as the students' guide and factilitator through this course of study, to present these values in a positive way. The Navajo language -- the language spoken most frequently by students' parents, grandparents and friends -- is of equal or (in many respects) greater value than the language of the dominant society. Moreover, students are learning about their community in this program; their native language is, of course, an essential part of that community.

Nevertheless, English also plays an important role in the Rough Rock community of "today and yesterday." This program is designed to help students recognize and *utilize* the bilingual balance of Navajo and English. By so doing, students will be on their way to becoming truly effective problem-solvers.

Many linguists have noted that all children acquire a set of *sociolinguistic* as well as *linguistic rules*. Linguistic rules concern the proper use of grammar and the grammatical structure of a language. These rules are often taught in school. At another level, children learn when and where to *use* langauge, and what is appropriate linguistically in different social settings. Much of this learning occurs intuitively, as children watch the behavior of adults. Inherent in the learning of these sociolinguistic rules is an understanding of the *social context* surrounding language use.

What is important for present purposes is the recognition that this social context is often very different to speakers of different languages. The sociolinguistic rules associated with Navajo, for example, may in many cases be in opposition to -- or at least different from -- those associated with English. This situation can present a problem in the presentation of lessons focused on *social skills* and *inquiry*. This guide and the text it reflects attempt to alleviate and, indeed, to capitalize on this problem. The aim of this program is not to force students to "choose" between Navajo and English as their *only* linguistic and sociolinguistic medium, but to enable them to use both linguistic codes to ask questions and solve problems. Thus, students come to understand, compare and respect the linguistic and sociolinguistic rules of two languages.[2]

Much of the success of an inquiry-based program depends on students' abilities to answer questions and to think and respond "on their feet." Students must be able to comprehend ideas presented in the text and lessons. More importantly, they must be able to

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[2]See Dell Hymes, "On Linguistic Theory, Communicative Competence and the Education of Disadvantaged Children," in *Anthropological Perspectives on Education*, ed. by M. Wax, S. Diamond and F. Gearing, pp. 51-66, (N.Y.: Basic Books, 1971); and Susan Phillips, *The Invisible Culture: Communication In Classroom and Community On the Warm Springs Indian Reservation* (N.Y.: Longman, Inc., 1982). Both Hymes and Phillips present an analysis of the native sociolinguistic rules which Indian children bring to the classroom.

create new ideas without overtly transferring them from one language to another. The ability to think and create in two languages provides an ultimate challenge to both teachers and students. The assumption of this curriculum, however, is that this ability comes *only after the child has achieved a high degree of critical thinking ability in the native language.*[3] The following suggestions are offered to facilitate bilingual critical thinking skills:

1) If students are dominant Navajo-speakers, present factual information first in Navajo. In a subsequent session, present the same information in English. If necessary, re-present the information in Navajo. (NOTE: Some information -- such as that obtained from encyclopedias -- may be available only in English. Such material may need interpretation in Navajo.)

2) Do not use Navajo and English in the same lesson. Separate students according to language abilities, if necessary.

3) For students whose primary language is Navajo, present most or all activities which require formulation of ideas, in Navajo. For English-dominant students present the activities in English and translate into Navajo as necessary.

4) Allow students plenty of time to respond when material is presented in the second language. It may be necessary to "edit" material in terms of quantity and degree of difficulty.

Evaluating Student Progress

This *Teacher's Guide* has a "built-in" evaluation system. Students' mastery of concepts and skills is determined by their ability to successfully complete the instructional objectives listed for each lesson. In addition, you may wish to devise a skills check-list which parallels the skills listed for each lesson. A weekly review of student notebooks will help you estimate how well students have understood concepts and ideas, and signals to them the importance you attach to this form of data organization. These checks, in combination with students' responses during group disucussion, on written worksheets and essays, and in creataive writing exercises which require the application of concepts, will provide a comprehensive inventory of each student's progress.

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[3]This approach has been used successfully at other schools on the Navajo Reservation. See, for example, Paul Rosier and M. Farella, "Bilingual Education at Rock Point -- Some Early Results," in *TESOL Quarterly*, Dec. 1976, pp. 379-390.

INQUIRY AND THE ROLE OF QUESTIONING

Paulo Freire called it the banking concept of education. Holt told us it was instrumental in the reasons "why children fail." Jerome Bruner warned us that it does not foster critical thinking. Some have termed it "teacher-dominated talk;" others have called it "teacher-centered;" still others have condemned it as the creator of "fact filled, non-problem solving students." It is nonetheless the most prevalent form of teacher-student interaction.

The statements above refer to the educational method in which teachers choose and completely direct the learning process in the classroom. Students are, to paraphrase Freire, the account into which teachers pour the currency of facts they have chosen as worthy of saving. In this process the student has no opportunity to make choices or explore, no chance to express opinions and often no means by which to develop new and challenging theories. The process is one which is the antithesis of inquiry and discovery.

Perhaps a case can be made for teacher-directed instruction in subject areas which require skills of computation and in which standard procedures are the ultimate goal. A teacher-directed approach may be the best method to use when students must learn to add, subtract, multiply, divide, construct coherent sentences, disect a frog or build a house. But social studies falls in none of these categories.

Social studies, because it is a study of people and how they live, work, relate and solve problems with other people, is one of the key academic areas. Through the study of the social sciences students learn what is expected of them as members of their society. They come to understand the processes and forces which shape their society and its values. Moreover, social studies generates an understanding of how these processes and forces shape other societies, thereby encouraging acceptance of differences and recognition of similarities which bind us all together as members of the human race. Most importantly, the ideas acquired and supported by a social studies curriculum help students solve present social problems and develop the means to solve future problems. Social studies skills are particularly important for students who must face these problems in a bilingual-bicultural or multicultural setting.

Social studies, then, can be a major factor in the acquisition of critical problem-solving and responsible decision-making skills. These goals cannot be accomplished, however, in classrooms where the teacher is the sole source of thought, where the teacher "force-feeds" students the pablum of facts and information, or in classrooms where the only expectation for students is the regurgitation of these facts. The development of effective problem-solving skills is instead facilitated in classrooms where students are expected to use facts and information to generate ideas, test these ideas, and generalize new ideas. In such classrooms teachers encourage curiosity and concern about human conditions, and the ultimate goal of the teaching/learning process is to encourage student *involvement*. This instructional style is known as *inquiry teaching*.

The process of inquiry contains the following elements:

1) the acquisition of sets of facts and information;
2) the organization and communication of facts and information;
3) the presentation and development of thought-provoking questions;
4) the development of tentative answers to these qestions;
5) the testing of tentative answers:
6) the development of new answers, if necessary, and re-testing of new answers;
7) the development of conclusions as a result of testing, which either explain the reasons for the answers or predict what might happen in a new situation.

The elements listed above provide the foundation for the acquisition of *problem-solving skills*. Before elaborating further on the inquiry process, it is necessary first to discuss the nature of these skills.

A *skill* can be defined simply as an ability to do something well. In education we think of skills in terms of certain academic task areas. For example, math skills often include the ability to perform certain mathematical operations; reading skills invove the ability to decode and encode written symbols; language skills involve the ability to use words to create sentences which follow specified patterns. A common social studies skill is the ability to use maps. Skills are an important part of the academic process. In fact, much time and effort is spent teaching the skills of each subject area. Social studies is no exception.

But what are the social studies skills?

Educators have argued this question over many years, and no one has yet disclosed a universal answer. In general, each social studies program has its own set of skills. While the Rough Rock Navajo social studies curriculum follows the basic format of state and national guidelines, it has tailored its program to meet the needs of Navajo students at Rough Rock. This combination of state and national directives with those generated by local needs, makes the Rough Rock social studies curriculum a valid and *viable* bilinguai-bicultural approach.

Skills in the Rough Rock program can be divided into five major categoris: 1) acquiring information, 2) organizing information, 3) communicating information, 4) utilizing information, and 5) social skills. Each of these skills is defined and discussed in the remainder of this section.

Acquiring Facts and Information

The acquisition of *facts* (statements such as, "The Navajo Reservation covers 25,000 square miles") and/or information (statements such as, "Navajos speak a language in the same linguistic family as Apaches") represents the lowest level of knowledge. Facts are nonetheless important building blocks for higher levels of knowledge (forming concepts and ideas), and for the development of generalizations. Facts and information help students see patterns, make comparisons, and obtain a sense of detail. Facts and information also illustrate how things change over time.

In acquiring facts and information, students develop a number of important skills that can be used in other subject areas. For example, as students sort through material to determine which bits of information are fact and which are opinion, they develop the skill of *evaluation* as well. They also increase their awareness of the best source of facts and information.

Fact acquisition plays a significant role in the inquiry process, and should be fostered in the social studies class. To do this, the teacher may select a combination of instructional strategies and student experiences, including lecture, reading, observing and listening. Each of these strategies is discussed in more detail below.

Lecture. The teacher is an essential source of information and in many instances, an "expert witness." Students should have direct access to this source. Through well designed lectures, teachers can give students important facts and information which might not otherwise be available. Lectures, however, should not become the only means of imparting information. To be effective, lectures must be well presented. Some suggestions for effective lectures follow.

1) Lectures should be brief, and used only when the teacher feels the need to control the amount and type of information presented.

2) Lectures should cover only one or two topics; they should be *focused.*

3) Lectures should cover material that is available *only* through this instructional strategy; that is, lectures should provide the necessary building blocks from which students can make their *own* discoveries.

4) Lectures should be interesting and utilize as many visual aides as possible including charts, photographs, slides, demonstrations, etc.

5) Teachers should prepare a concise outline for the presentation of the lecture. The outline should include:
   a) the objectives of the lecture;
   b) important points that will be brought out in the lecture;
   c) the sequence of presentation;
   d) a list of sources and/or visual materials to be used in the presentation.

6) The teacher should be well prepared for the lecture by:
   a) knowing every detail about the topic to be discussed;
   b) having all material available and ready beforehand;
   c) anticipating students' questions and possible problems in comprehension.

Reading. Student textbooks, supplemental texts, encyclopedias, magazines, pamphlets, etc., are another important source of information for students. In some cases students may have no other informational source available.

Teachers should encourage students to read textual materials beyond the level of comprehension. Social studies is an excellent agent for the elaboration of this skill. Through carefully selected and organized reading assignments followed by a question-answer session, teachers can assist students in making *interpretations* (inferring what the author meant on the basis of what he or she wrote), and in *applying* what is read (going beyond the author's statements and intentions to identify an idea or concept that can be applied to other circumstances.) The following is a sample exercise that can be used to increase students' reading/interpretive abilities, and to evaluate progress in this area.

Sample Social Studies Reading Exercise[1]

Before assigning reading in social studies, read through the material yourself, then make a list of statements. One (or two) of the statements should include *literal comprehension* -- a simple restatement of the textual material or a summary of the reading. Using the paragraph above as an example, the following statements reflect literal comprehension:

1) Reading assignments in social studies help students develop interpretive and applied reading skills.

2) When students can explain what they think an author meant by a statement he/she wrote, they are interpreting what was written.

3) Question and answer sessions at the end of a reading assignment help students develop interpretive and applied reading skills.

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[1]This exercise is adapted from H. Herbert, *Teaching Reading In the Content Area.* Prentice-Hall (1970).

One or two of the statements in your list should be *interpretive*. Some interpretive statements taken from the same paragraph above, are:

1) Students can learn more in the social studies class than just social studies skills.

2) Reading assignments should do more than take up time.

3) Teachers should plan every reading assignment to ensure that students are acquiring and increasing reading skills.

Finally, one (or two) statements should represent the *application level*. The statements below are applications from the same paragraph:

1) Reading skills beyond the literal level are important to the development of critical thinking.

2) Social studies fosters skills development that will help students in other subject areas.

3) Social studies teachers are also reading teachers.

After making a list of statements, develop questions and answers such as the following:

Q1) Which three statements above summarizes what the author said in the article?
A1) Numbers _____, _____ and _____

Q2) Which three statements above reflect what the author meant by what he said?
A2) Numbers _____, _____ and _____

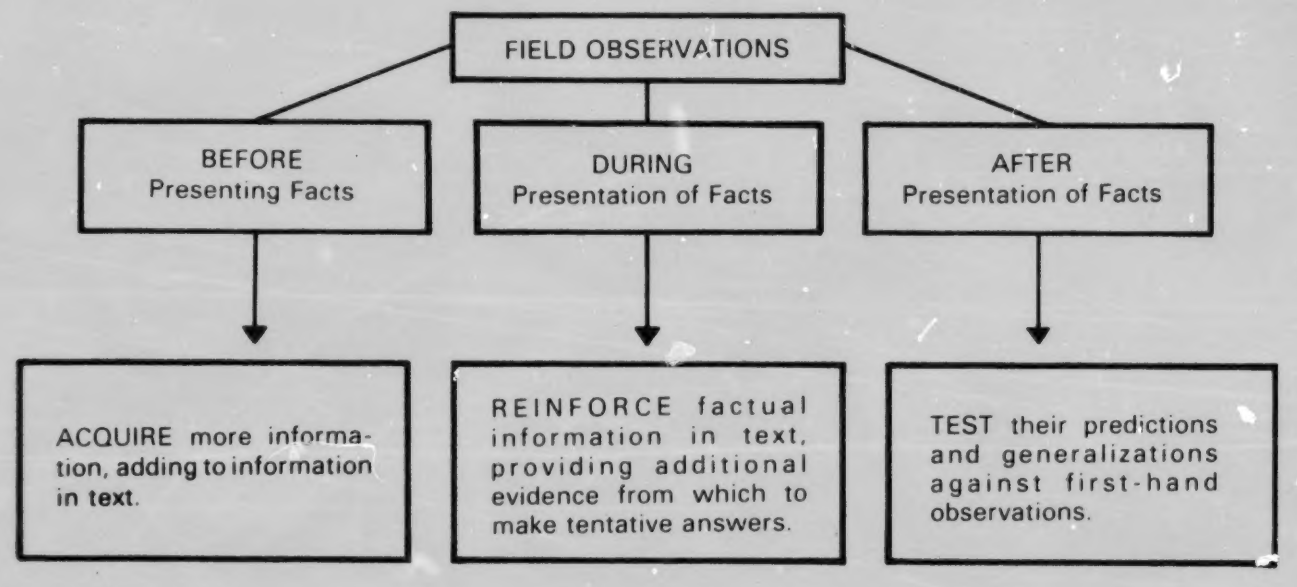
Q3) Which three statements above go beyond what the author said and could be used to make inferences about other circumstances and experiences?
A3) Numbers _____, _____ and _____

Questions like these will help students in all areas of their school work, and will ultimately increase their ability to sort out the volumes of information they will encounter in both their academic and personal lives.

Observation. One of the most neglected student experiences is that of observation. Observation can be simply defined as the use of the senses to gather information. How often does the teacher, after watching a student, determine without questioning the student that he or she is ill, bored, afraid, or any of a hundred other things? How many times do we as individuals stand apart from a social interaction and, without knowledge of those involved, assess the situation? Observation can and should be an integral part of the social studies class. Students should be encouraged to use the powers of observation they have acquired at home during everyday learning experiences--such as herding sheep or assisting with household activities.

Many of the opening exercises in the Rough Rock Navajo social studies program involve students in observation. The lessons are designed to help students individually or in small groups use their powers to see, hear, feel and/or taste to gather important facts and information. Occasionally (and this occurs more frequently later in the program), students are encouraged to compare their observations which they derive from "looking" at a set of data or from their past experiences, with the written description of others.

Observational activities also occur outside the classroom, during field trips and lectures from Navajo resource people. Some field trips should be planned *before* students receive facts contained in the text. An example here is a field trip to various elevation zones near Rough Rock, during which students can make observations of plant and animal niches. This will help students acquire facts and give them a basis from which they can later make generalizations. Field trips may also occur at the *same time as* students are incorporating factual information from the text. Their field observations will reinforce the information presented in the text and through supplementary reading. Finally, some field trips should occur *after* factual information has been presented in class. This will allow students to *test* their predictions against the facts they observe. The chart below illustrates the rationale for planning field trips before, during and after presentation of factual information.


FIELD OBSERVATIONS
BEFORE
Presenting Facts
DURING
Presentation of Facts
AFTER
Presentation of Facts
ACQUIRE more information, adding to information in text.
REINFORCE factual information in text, providing additional evidence from which to make tentative answers.
TEST their predictions and generalizations against first-hand observations.

Listening. Like the access skills discussed above, listening is a skill that can and must be developed over time. It is a skill that, like observation, is acquired very early in life. Children learn to listen while being instructed at home. The Navajo child is often told to listen to the sounds of nature. Yet how often do we hear teachers complain that, "Chee doesn't listen"? It is perhaps unnecessary to point out that students often do listen, but not to what we want them to hear. This is due in part to poor listening habits and less than examplary adult role models, and in part to our own perceptual blinders which help (or hinder) our ability to hear what we want to hear. It is also a consequence of our inability to sort out what is important from what is trivial. Research shows that the average listener remembers only a very small fragment of what he or she hears. Further, it has been demonstrated that only 35 percent of the message we receive from others is verbal. Time diminishes even this small percentage, so that in a week or two very little of what has been heard may be remembered.

Nevertheless, students *can* learn to listen and remember well. Activities which involve interviews of community members and which require making a report of the interview, help build listening skills. Small-group research with the added feature of summary reporting, helps students remember what has been said. Frequent classroom discussions with well established

rules of courtesy, increase students' ability to work with others and emphasize the importance of listening to what someone else has to say. Short, but frequent summary recall questions (for example, "John, can you restate what Mary just said?" or, in the case of a lecture, "Bill, can you summarize the information I just gave you?") remind students of the need for attentive listening and help them to become aware of what facts are important.

The Organization and Communication of Facts and Information

During the typical school day students are faced with the acquisition of a multitude of facts and information. If, at the end of the day we were to "test" students on this information, how much of it would they remember? The answer is, probably very little. Why is this so?

One answer might be that, "Students never learned the information." Others would surmise, "Students didn't understand the information." Others might say, "They couldn't remember all the facts they were given." Each of these responses is true. Very few students (or adults) can learn everything they are taught (at least on the first try); very few students can understand everything they read, see, or are taught; and certainly very few can remember everything that passes through their brains.

What should teachers do in this situation? Should they limit the amount of information given to students? The answer is both yes and no. We as teachers often want to give students every bit of information we have acquired or think important. Our efforts are sometimes overdone and we "fill the cup to overflowing." On the other hand, there are some things which must be learned, experiences which must be had, information that must be gathered -- and we owe it to our students to give as much of this as we can.

Inquiry, since it involves the *use* rather than the *storage* of information, is one means by which students can remember what they have learned. Yet even in some very exciting inquiry classes, students forget important bits of information. Therefore, a crucial skill necessary to produce clear-thinking, problem-solving individuals, is the ability to organize information so that it can be processed and utilized.

One basic organizing skill is notetaking and the keeping of records. Notetaking is especially valuable to students when the information they are gathering comes from sources which are not readily available for review. Interviews, library research and extracurricular observations and experiments are examples of this type of information-gathering. Teachers initially can assist students by preparing record sheets and observation and experiment record forms. Examples of these can be found in many of the lessons in this guide. As with many other social studies skills, taking notes and keeping records have "spin-off" rewards. As notetaking is practiced the student is simultaneously increasing his/her skills in observation, listening and reading.

Chart-making, another type of note- and record-keeping, involves slightly more advanced skills since the student must not only write down information, but must also have a certain organizational scheme in mind. Charts are an efficient form for presenting and organizing information, and can take many forms. A number of different kinds of charts are utilized in this fourth grade social studies program. Although a chart is technically something in which a number of facts, bits of information or statements are listed in columns under a specific heading (see page 27 of the guide for an example), tables (which generally are lists of number facts associated with production, population, distance, etc.) can also be considered charts as they are used in this program. Graphs, which are defined as diagrams that show

relationships and/or inter-relationships between sets of elements, are also considered charts here since they serve the function of organizing and communicating information.

An excellent way to provide students with practice in organizing information is through short, one-topic reports. These written exercises might contain a set of specific questions for students to answer with at least one question that requires a conclusion or generalization. Thus, students are "forced" to review and check their information. Oral reports also help students realize the importance or organizing information. Periodic short, one-topic reports are effective and productive exercises.

A final word of caution is in order. Students, no matter how organized or excited, cannot handle great volumes of information at once. Do not drown them in a sea of information, especially at the beginning of a task. Analyze your students' abilities to handle information and judge your assignments accordingly.

The Development and Presentation of Thought-Provoking Questions (Utilizing Information)[2]

The ultimate goal of any inquiry lesson is the answering of questions which will lead students to the solution of important problems. Students cannot accomplish this until they have witnessed examples of questions and had practice in answering them. Hence, the the teacher plays an important role in this aspect of the inquiry process. It is at this point that the teacher becomes more than a facilitator; the teacher is a crucial "cog in the wheel."

The development and presentation of thought-provoking questions is a product of *critical thinking*. Probably the most distinctive difference between human beings and other animals is the fact that the human being is a critically thinking animal. Critical thinking is a process of using one's mind to record, analyze and interpret information. As with most skills, critical thinking is a *developmental process*. It is not learned all at once, but over time. What is important is that critical thinking skills can be *taught*.

The late Hilda Taba[3] and her associates at San Francisco State University conducted extensive research into this area of development and formulated the following assumptions about thinking.

1) Thinking involves an active transaction between an individual and the data with which he/she is working. Data becomes meaningful only when an individual performs certain "cognitive operations" on it ("cognitive operations = thinking").

2) The ability to think cannot be "given" by teachers to students. Effective thinking depends on the richness of content, the cognitive processes used, and the initial assistance provided in the development of such processes.

3) All school children are capable of thinking at abstract levels, though the quality of individuals' thinking differs markedly.

4) Precise teaching strategies can be developed which will encourage and improve student thinking.

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[2]Much of the discussion in this sub-section is adapted from the *Navajo Bilingual-Bicultural Curriculum, Grade 2 Teacher Guide* produced by the Native American Materials Development Center, Albuquerque, NM (1980), pp. 469-486.

[3]See "References" for a more complete list of sources on HildaTaba.

Thinking (or cognitive) skills involve the ability to interpret information, develop concepts, and use information or facts to solve problems. Therefore, *cognitive strategies* aim at allowing students to systematically develop these skills. The strategies are of three kinds:[4]

1) **Developing Concepts:** In this strategy, students *list, group* and *regroup* a number of items and then *label* the groups.

2) **Developing Generalizations:** In this strategy, students make inferences and then generalize about the relationships they observe among various kinds of data.

3) **Applying Generalizations:** In this strategy students are asked to apply previously learned generalizations and facts to predict what might happen in a situation which is new but similar.

Each strategy is discussed more fully in the remainder of this subsection.

Developing Concepts. This strategy forms the basis for the cognitive skills. It is a necessary prerequisite for higher levels of thinking (forming and applying generalizations). Concepts are shaped by students as they participate in these types of activities:

1) *observing* their environment through pictures, stories, movies, music, etc.;

2) *identifying* and *listing* items from their observations;

3) finding reasons for putting the items from their list into logical *groups* (note that students are not limited to any precise grouping rationale; however, they must be able to defend their reasons for grouping as they do);

4) assigning a logical *name* or *label* to their groups.

During this process the teacher's role is one of asking precise questions. At all times the teacher must be careful to see that the student does the thinking. The teacher should not provide labels for students, but should encourage them to devise their own labels. Concepts formed in this manner are firmly embedded in the student's "concept library" and are used in later thinking development.

Developing Generalizations. The process here is similar to that of developing concepts. In this process students begin to:

1) look for elements from a number of examples with the same questions in mind; for example, they might be asked, "Why do people have families?"; they then look at samples from different groups of people (Navajo families and Eskimo families) and *compare* and *contrast* similarities and differences;

2) develop explanations for what they see; for example, students might explain the similar or different functions of Eskimo and Navajo families; this involves *making inferences* from data;

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[4] Slightly modified from Hilda Taba *et al., A Teacher's Handbook to Elementary Social Studies: An Inductive Approach* (Second Ed.). Reading, MA: Addison Wesley (1971).

3) form conclusions by making statements about the evidence they have acquired; this involves *making generalizations.*

Developing generalizations is not always a precise 1-2-3 process, but it generally follows this outline. As with concept development, the development of generalizations should be guided. Children need this opportunity to proceed from learning facts (such as "Eskimo families are nuclear while Navajo families are extended") and developing concepts (such as family, needs, wants, etc.) to the most important human activity, using knowledge to solve problems.

Applying Generalizations. No amount of knowledge is worth anything unless it can be put to use. The purpose of any type of knowledge is to solve problems. After students have grasped a great deal of information and have had many experiences with the two preceding strategies, this strategy requires them to look at data in terms of generalizations they have made and predict behaviors or events that might occur. When a student is asked a question such as, "What will happen to our community if it does not rain?" the student is required to apply a generalization. This strategy helps students organize and utilize their knowledge. Hopefully, this social studies skill will be transferred to other subject areas and in fact, to life itself.

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As mentioned above, thinking is a developmental process guided by the teacher. One of the teacher's major tasks in this process is questioning. *No teaching strategy or process is any better than the ability of the teacher to question.* While this is true, it is also true that asking the "right" questions is not an easy task.

Questions can basically be classified as *open* and *closed.* Both types of questions are useful. The choice of which type to use depends upon how the teacher expects students to respond.

Closed Questions. Closed questions are questions which have a right or wrong answer. They are closed because they do not allow students to expand on their answers. For example, "How many states are there in the United States?" is a closed question. This question has only one right answer; it allows only one person to answer correctly. The question requires no elaboration.

Closed questions usually deal with simple recall of facts. While this is necessary at times (for example, when you need to test comprehension of the text), they are of limited use in helping students develop thinking skills.

Open Questions. Open questions are questions which do not have a right or wrong answer. They are broad enough to allow flexibility in student responses. In addition, they allow a greater number of students to enter the discussion. A question like, "Why do you think there are 50 states in the United States?" allows for a number of possible answers, many of which might be correct. This type of question also offers students who have acquired added information the opportunity to use that information. For example, a student may have learned that Brazil is also divided into states and might be able to use that information to answer the above questions.

Open questions give the teacher the opportunity to create new learning experiences which might be suggested by the answers. For instance, if the teacher used the question above and two students came up with totally different answers, the teacher could use that as a basis

for a research project. The teacher would then ask each student, "Why do you think your answer is correct? What evidence do you have to support your answer?" This is *inquiry.*

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Throughout the Rough Rock Navajo social studies curriculum, particular questioning sequences are either detailed or suggested. The following is an outline of the general form of these questioning sequences. For ease of discussion they are divided according to the general teaching strategy to which they relate.[5]

Sequence 1: Developing Concepts. This sequence of questions is usually used at the beginning of a series of activities; it should be used, however, any time a new concept is introduced or when the teacher wants to limit the range of concept definition. Sometimes it is used as part of other thinking skills strategies.

Listing Question

1) *Díí lá ha'at'íí nidaashch'ą́ą?*
(What are some of the things that you see in this picture?)

This question encourages students to name (list items from their observations of a pre-selected sample.) It also serves as a focus for discussion. A listing question limits the *type* of discussion without limiting the *amount* of responses.

Grouping Questions

1) *Díí nídahlslidzoolgíí lá háidlígíí t'áála' nidanideeh?*
(Now that you have given a list, which of the items do you think belong together?

This question encourages students to recognize common characteristics of the items in their lists.

2) *Ha'át'íílá biniinaa t'áála' nidanideeh danohsin?*
(Why do you think these items belong together?)

This question encourages students to think about their reasons for grouping. It helps them establish and defend their reasons, which at first are probably arbitrary.

Labeling Questions

1) *Háílá díí a[ɬ]aa nidaashjaa'ígíí bízh' ła' yá íílééhgo yílghah?*
(Can anyone give me a name for this group?)

This question establishes the concept word. It helps to go from the concrete (the items) to the abstract (the word) that represents the sum of the items.

2) *Háílá éí bízhí' yá ánáánéélééhgo yílghah?*

(Can anyone give me another name?)

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[5] The questioning sequences have been adapted from Hilda Taba's "Cognitive Strategies." Specific sequences may differ slightly from these, depending upon the actual activities.

This question, not always necessary or appropriate, gives other students a chance to go from concrete to abstract and helps to establish the tentative nature of some concepts.

3) *Díí yízhí lá háidlígíí díí kojí dah shíjaa'ígíí yaa halné?*

(Which of these names do you think is better suited to the characteristics of the group?)

This question helps focus students on a common meaning to the label, and establishes a common term that can be understood by a greater number of people. As with the second question, it is not always necessary or appropriate.

Sequence 2: Developing Generalizations. This sequence of questions usually, but not always, follows Sequence 1. Sequence 2 is important in the inquiry process because the questions help establish methods for going beyond the data to understanding the relationships expressed in the organizing and main ideas.

Focusing Question

1) *Ha'át'íish biniinaa át'é danohsin?*
(Why do you think this is so?)

This question defines the area of the problem. It gives students a clue to what they are looking for. This type of question is most appropriate before students are given data. Their answers usually are in the form of tentative guesses, especially if they are not familiar with the area under discussion. For example, "Why do people have families?" would be an unfamiliar area for many students.

Listing Questions

1) *Díí danóoł'ígíí binahjí' lá ha'at'íí baa ádahonoozíí?*
(Now that you have seen examples of this, what did you notice?)

This questions serves the same purpose as the listing question in questioning Sequence 1. It also helps students to organize their data into usable form.

2) *Díí hazhó'ó danółí. Haalá yit'éego aťąą át'éego baa ádahonohsin?*
(What differences or similarities did you notice?)

This question serves as a source for explaining and comparing the different aspects of the data.

Inference Question

1) *Ha'át'íish biniinaa át'é danohsin? Haasha' yit'éego ádzaa'? Haasha' yit'éego aťąą át'é baa hólne?*
(Why do you think this is so? Why did this happen? How do you explain the differences?)

These types of questions serve as a source for drawing a conclusion in terms of the relationships they have seen in the data. It also helps to further organize the data they have acquired.

Generalization Question

1) *Ha'át'ish yaa halne' danohsin?*
(What does this tell you about _____?)

This question brings all of the data and guesses into focus. The students have to draw a conclusion about relationships. They are asked to interpret the data and information they have at hand.

Sequence 3: Applying Generalizations. Although generalizing is the highest order of thinking, generalizations are useless unless the student is able to use the generalization to predict from similar data, or to arrive at the solution to a problem. Questioning Sequence 3 helps students through this difficult process. It can also act as an evaluation of the depth of understanding students have developed through Sequence 2.

Problem Question

1) *Haash hodoonílí danohsin, díigi áhoodzaago?*
(What do you think will happen if such and such happens?)

This question sets the focus. It establishes for students the generalization(s) that they must consider in solving the stated problem. This problem is usually a slight variation or paralleled version of the theme under study.

Evidence Questions

1) *Ha'át'ish biniinaa ákóhodoonílí danohsin?*
(Why do you think that will happen?)

This question serves as the organizing question. Students and teachers are using the same process as in "developing generalizations" at this stage.

2) *Ha'át'ish bee nił bééhózin ákóhodooniilgíí?*
(What evidence do you have that his will happen?)

This question serves as the catalyst for data gathering. Students will have to put together generalizations, information, and facts in order to support their guess to the problem question (i.e., What do you think will happen if . . . .?)

Extension Question

1) *T'áá aanít ákóhoodzaago shą' éí haahodoonílí?*
(If it is true that this will happen if such and such happens, what do you think will happen next?)

This question, which appears in several forms throughout the student text, illustrates the extension of problem-solving beyond the one situation presented in the problem question.

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Important Things To Remember About Questioning. Teachers must remember the difference between open and closed questions and decide when each is required. A good

general rule of thumb is: when you want to find out if students know a particular set of facts, the sequence of events in a story, or other descriptive information, use closed questions. On the other hand, *if you want to help students develop high levels of cognitive skills beyond the level of simple recall, use open questions.*

While closed questions are often too limited and restrict thinking, questions that are too broad such as, "What would you like to say about this slide show?" do not provide a focus for discussion. This is especially true for young people who have not had much experience with open questions.

Some questions may be too abstract and need preparation for discussion. For example, asking, "After seeing a slide show about our community, what do you think is a good definition of community?" is far too abstract. It needs a series of focusing questions.

Teachers must be listeners. Listening to the students' answers gives teachers strong indications about the type of questions they are asking. For every question asked, the teacher must have an idea of the type of answer expected.

Teachers must be careful not to use questions which are really statements, corrective or controlling devices. Questions such as, "John, do you *really* think that dogs have two tails?" is actually saying, "John, your answer is incorrect." By asking such a question, the teacher is not allowing the student to discover for himself the correctness of his statement. A better question would be, "John, what evidence do you have that dogs have two tails?"

Teachers must be aware of the effects of *grouping students.* Generally, lessons which involve the discussion of questioning such as in the strategies discussed, do not work well with large groups (more than nine students). Committee work of any kind is better handled in small groups. Small groups allow for a great amount of interaction between students, students and teachers, and between students and materials. On the other hand,lessons or activities which involve the intake of information, exchange of information, or establishment of procedures, are often more time efficient and academically effective in large groups.

The Development of Tentative Answers (Utilizing Information)

Most teachers and testers evaluate a student's progress or attainment of objectives through the use of questioning. A student is considered to have "learned" if he/she is able to answer questions correctly or provide answers to questions which contain the facts, information, or ideas expected by the teacher or tester. In some instances this is appropriate and acceptable. In an inquiry lesson, however, this is not always appropriate or acceptable. Most often, questions in an inquiry lesson are designed to stimulate thinking, not answers *per se.* It is important, therefore, that students be given the flexibility to "create" answers to questions, not regurgitate.

It is hoped, of course, that eventually students will develop answers that are logical and meaningful and show the utilization of facts, information, and ideas; but inititally it is necessary that they *explore* and *experience.* Hence, an important part of an inquiry lesson is the development of tentative answers to questions. Tentative answers are answers that are not right or wrong, but that are not beyond any hope of being even remotely correct.

Teachers must emphasize to each student the importance of his or her tentative answers. Teachers must encourage guesses. There must not be the slightest hint that the teacher considers an answer incorrect. At the same time the teacher must also emphasize that wild incoherent responses are not appropriate. Students can learn this process quite easily, and over time will begin to develop excellent guesses based on information they have gathered.

Testing of Questions (Utilizing Information)

There is an old proverb that says, "If you give a man a fish, he will eat for a day. If you teach him how to fish he will feed himself." Phrased differently the proverb goes, "If you tell a student an answer is incorrect and then give him/her the correct answer, the student will know the correct answer. If you ask the student to prove it, the student will be able to evaluate his/her own answers." The importance of requiring students to test their answers through research, review of facts and information, experimentation and other means, cannot be over-emphasized.

Research, observation and experimentation are all the result of the need to prove tentative answers. This *Teacher's Guide* is designed to help teachers help students accomplish this most important task through reivew, well chosen research, observation and experiment. It is important at this point in the process that teachers observe the way students use information they have gathered, noting whether or not students do in fact utilize what they know rather than make more guesses. Teachers can do this by checking: 1) the sources of information used by students; 2) how well students have understood these sources; and 3) recall of vital facts. All are important evaluative methods to insure proper use and testing of tentative answers.

The Remaining Steps of Inquiry

Inquiry is not a linear process beginning at point A and moving to point Z. It is more analogous to a spiral beginning at point A and retracing numerous steps before it comes to point Z. One of these spirals occurs after the students have tested their tentative answers.

At this point, students must evaluate their responses, determining if the information supports their tentative answers. They move on to the formulation of conclusions: "Since my answer seems correct, then I feel that such and such will happen." This too must be tested. Students must re-test what they conclude against new and different situations. If their tentative answers prove incorrect they must form alternative answers and re-test these.

This may at first seem to be a frustrating exercise. As the students advance in their abilities, however, their initial answers become more and more precise and their conclusions more far-reaching--until eventually they are able to utilize them in very different circumstances. As a consequence, the generalizations they develop are significant and powerful, and can be used to explain many events they will face in the future. The generations can be used, also, to answer many other questions.

Social Skills

The social skills are those that involve primarily the *affective* (as opposed to the cognitive) domain. Social skills include the ability to communicate and interact effectively and appropriately with others: speaking, listening and participating in group activities. They also include important family and group values which reflect the moral character of a society.

It is at this point that the teacher's role as facilitator of the bilingual-bicultural curriculum becomes especially crucial. Teachers must assist students in acquiring the skills necessary to function in the language and sociocultural milieu of their home and community, as well as those of the dominant society. This can be accomplished in part by following the guidelines for language use contained in Part I of this guide. Appropriate teacher-modeling of

language will provide students with a solid foundation for acquiring the *linguistic rules* (pronounciation, vocabulary, grammar, semantics) and *sociolinguistic rules* (knowing the appropriate social context for *using* language) of Navajo and English.

The development of social skills is also facilitated in class and small group activities which require listening to others, discussion and cooperation in tasks to meet common goals (e.g., research projects). Three key concepts in the text are *cooperation, sharing* and *interdependence.* These concepts should be reinforced by teachers -- directly and more subtly - in every lesson that is taught. Students should be encouraged to *apply* these concepts in their classroom behavior, not only during social studies lessons but in all classroom activities.

A primary social skill in this curriculum is the ability to internalize and demonstrate the Navajo value of *k'é* -- "right and respectful relations with others and nature." This value is interwoven throughout the K-6 program, and is integral to the student text and lessons in this guide. The main ideas for Book I -- which concern balanced, harmonious interactions between living things -- reflect this very important principle. The philosophy of *k'é* embodies the text and lessons, and should be modeled by teachers and students as they proceed through the course of study.

BEST COPY AVAILABLE

CHAPTER ONE

Our Community: Rough Rock

LESSON I

Purpose

Lessons and activities for Chapter One of the text have as their purposes:

1) reinforcement of the concept *community* which is introduced in the text; and

2) helping students to recognize the elements and characteristics of a community.

Concepts

The following concept is developed in the activities of this lesson:

Community. A community is a group of people who live together, work together, and help each other to solve the problems of survival. A community includes the people, their homes, their possessions, and a number of services such as police, local government, churches or other religious institutions, doctors, hospitals, utilities, etc., which meet the needs and interests of the people of the community.

The type, size, and make-up of a community are determined by a number of factors. Among these are: the culture of its members, the needs, wants and interests of its members, and the physical environment in which the people live.

This concept is covered throughout the textbook and is reinforced in the *Teacher's Guide*. The additional concept of *environment* is introduced in the above "concept explanation." This concept is further explored in subsequent lessons.

Except in special cases, the "textbook" definition of a concept *should not be given word for word* to students. Through the activities students will come to discover the meaning of concepts. "Textbook" definitions are for the teacher, not students, and serve as a means to check students' understanding.

Main Idea

The main idea of this chapter and the lessons developed for it is:

Rough Rock is a community because it is made up of people, their homes, their institutions, and because the people work together to help each other meet mutual needs.

Skills To Be Developed

1) Acquiring Information
   a) observation
   b) picture analysis
   c) reading

2) Organizing Information
   a) listing
   b) grouping
   c) labeling
   d) chart-making

3) Communicating Information

Objectives To Be Achieved

Upon completion of the activities in this lesson, the students will be able to do the following:

1) Define *community* in Navajo (and/or English, as appropriate), citing as part of their definition the following major points:
   a) a community is made up of people;
   b) a community is formed because people need to work together to meet their needs;
   c) a community contains people, services and feelings of mutal need;
   d) the form and type of a community is determined by culture, environment, and needs of the people who live there.
2) When given a list of things in a community, identify them as "things which a community has."
3) List at least 10 elements needed to make a community.

Materials Needed

It is important that these materials be gathered and available before the lesson begins:

1) Photographs of various communities from around the world. (These may be gathered from *National Geographic, Life, Look,* or similar magazines. Old discarded social studies texts are also a good source of photographs.)
2) scissors, glue or paste
3) construction paper
4) marking pens.
5) Book I "Photo Posters"

Suggested Time

Allow at least 15 minutes for discussion and 30 minutes for the "art" activity.

Teaching Strategies and Activities[1]

1) Write the word *community* on the chalkboard. Pronounce it for students, then ask them to repeat it. Repeat it again for them. Make sure that each student can pronounce the word correctly. (NOTE: This activity should be conducted first in Navajo; if it is appropriate for the class, the concept of *community* should then be translated into English.)
   a) Use the photographs of communities you collected from magazines, etc. Hold them up for students to see, then say: "This is an example of a community."[2]

[1] Because the concept *community* is so important to the development of the generalization in this chapter, it is introduced and reinforced through a teacher-directed activity, one of the few in this guide.

[2] Pictures, drawings or diagrams used as examples of communities should include the following: homes, people, buildings such as stores, meeting places, places of worship, etc. All of these elements should be clearly visible as a set. Pictures which are *not* examples of communities include: a single home, an empty home, an activity, piece of furniture, etc. In short, an example of something which is *not* a community can be almost any of the elements which make up a community, but in isolation.

b) Hold up another photograph and repeat the sentence. Continue this process, using three or four more examples. Then hold up another picture which does *not* represent a community and say, "This is *not* a community." Repeat this process three or four times.

c) Now, hold up a photograph which shows a community and ask students to identify the elements in the photograph. Draw students' attention to page 2 of the text. Repeat this activity until you feel that each student has grasped the general meaning of the concept *community*.

2) Hand out old magazines to students and give them the following directions: "Look through these magazines for examples of elements which you think go into making up a community. On your construction paper make a collage (ti may be necessary to define this term for students) and title it, "The Makings of a Community."

a) When students have completed the collages, check them for examples of the things which are necessary for a community to exist. You may then wish to mount them on the wall or bulletin board.

b) Use Book I "Photo Posters" and ask students to select pictures which represent elements of the Rough Rock community. Make a bulletin board collage entitled, "Our Community Contains These Elements."

Evaluation

The art activity is actually an evaluative instrument which measures students' understanding of the key concept *community*.

LESSON 2

Purpose

This lesson reinforces the concept *community* and introduces the concepts of *interaction* and *cause-and-effect*. The activities also develop a number of social studies skills.

Concepts

These concepts are developed in Lesson 2 activities:

1) **Interaction.** When two or more elements work together, they produce or create something. Life could not exist without interaction; it is the process which keeps our world functioning.

2) **Cause-and-Effect.** When two elements interact, there is a consequence. Depending on the elements interacting and how they interact, the effect will be positive, negative or neutral.

The concepts listed above are repeated throughout the text and are considered *key concepts* because they form the foundation for the main ideas in the book.

Main Idea

The main idea for Lesson 2 is the same as that for Lesson 1.

Skills To Be Developed

1) Acquiring Information
   a) observation
   b) picture analysis
   c) reading
   d) map-reading

2) Organizing Information
   a) listing
   b) grouping
   c) labeling
   d) chart-making

3) Communicating Information
   a) oral communication
      - group discussion
      - oral reports
   b) written communication
      - writing a short report
   c) map-making

4) Using Information
   a) generalizing
   b) predicting

5) Gaining Knowledge
   a) concept development
   b) stating facts about different communities
   c) understanding distances

6) Social Skills
   a) listening to others
   b) participating in group discussion
   c) cooperating with others to find answers to questions

Objectives To Be Achieved

Upon completion of the activities in this lesson, students will be able to do the following:

1) Locate Rough Rock on a map of the Navajo Reservation, map of Arizona, and a map of the Western United States.

2) Identify ten elements of a community which are present at Rough Rock.

3) Write a one-page report which explains why they believe Rough Rock is a community, pointing out the elements which make it a community.

4) Demonstrate understanding of the concepts of *sharing* and *cooperation* by listening to others, participating in class discussion, and exchanging ideas during question-and-answer, chart-making and map-making activities.

It is important to note that at this point, *community* is only a postulate. A "final" definition of this term by students will probably not occur until they have progressed through the final chapter of the text and associated activities.

Materials Needed

The following materials should be gathered and available before beginning the lesson:

1) textbook
2) individual student notebooks
3) marking pens
4) butcher paper
5) small blocks of wood
6) large wooden slab
7) cardboard
8) acrylic paint
9) plaster/paper maché
10) Arizona State map[3]
11) U.S. Geologic Survey Map[4]
12) map of Navajo Reservation

Suggested Time

Allow 35-45 minutes per activity. (Activity No. 7 may be extended over several class periods.)

Teaching Strategies and Activities

1) Review the concept *community* as necessary. Review the vocabulary of Chapter One as necessary.

   a) Before students begin reading, ask them the following questions:
      - "What is the subject of Chapter One in your textbook?"
      - "Why are we interested in it?"

      Look for answers similar to:
      - "The subject of Chapter One is Rough Rock, and we are interested in it because it is our community."

      Evaluation Note: One of the important reading skills in social studies is the ability to obtain information from a chapter or section heading. The title of Chapter One gives students hints as to the chapter's subject matter.

   b) Ask students to read the contents of Chapter One. Encourage them to answer the questions on pages 1, 2 and 4. They should write their answers and insert them in their notebooks for future reference.

   c) Review the content of the chapter with students.

2) Using a map of the Navajo Reservation, locate Rough Rock and a number of surrounding communities. Point out the important landmarks, roads, etc., so that students will have reference points for the next activity. Depending on the amount

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[3] The Arizona State Highway Department will usually supply a classroom with these maps for little cost when maps are requested on official school stationary.

[4] Available through the U.S. Geologic Survey, Branch of Distribution, Box 25286, Denver Federal Center, Denver, Colorado 80225, or any good map distributor. Sports goods stores often have a good supply of these topological maps.

of experience students have had with maps, you may wish to review the use of maps and their keys before going on to the next activity.

3) Hand out copies of a good Arizona State map to the students. Ask each of them to use reference points from the Navajo Reservation map to locate Rough Rock. Ask them to locate important communities around Rough Rock, then communities further away from Rough Rock. Communities which should be included are: Many Farms, Chinle, Kayenta, Tsaile, Window Rock, Flagstaff, Holbrook, Tuba City, the Hopi Reservation, Gallup, Phoenix. Each of these is important to Rough Rock.

   a) After students have located the communities mentioned above, orient them to the use of scale. Ask them to figure the distance from Rough Rock to the other communities. This is an important activity since it not only develops many skills and the concept of distance, but also increases students' understanding of how distances between communities affect the character of a community. The latter is an idea that will be covered more fully in the next activity.

4) After students have had time to give at least some of the distances, develop a chart like the one below, using bar graphs to show the relative distance between Rough Rock and other communities.

Community	Distance from Rough Rock
Many Farms	
Chinle	
Holbrook	
Phoenix	
Gallup	
Albuquerque	
Flagstaff	
	20 35 50 65 80 95 110 125 (etc.)
	MILES

   a) As an adjunct math-related activity, ask students questions about the relative distance. For example:

      - "Which community is farthest from Rough Rock?"
      - "Which community is half the distance (or one-quarter, one-third, etc.) from Rough Rock as the farthest is from Rough Rock?"
      - "What is the difference between the distance between Rough Rock and Phoenix and the distance between Rough Rock and Window Rock?"

5) After students have figured the distance between Rough Rock and other communities, begin a discussion by asking:

   • "Which of the communities on this chart do you think are most like Rough Rock in the kinds of people that live there, the type of land, the type of things the people do to make a living, the kinds of livestock you would find there, plants, etc?"

The following chart will be help in making students' comparisons.

	THINGS TO COMPARE								
OTHER COMMUNITIES	People	Geography	Animals	Climate	Weather	Services	Houses	Plants	DISTANCE FROM ROUGH ROCK

KEY:

A = Alot Like Rough Rock
S = Somewhat Like Rough Rock
D = Different Than Rough Rock

a) Now guide students to the conclusion that distance between communities is one of the factors that makes communities different or special. Help students to see that the nearer a community is to another community, the more likely that the communities will share elements in common. (The people, geography, culture, etc., are more likely to be similar; thus, the communities will be similar.)

6) Review the information from Lesson 1; review pages 2 and 3 of the student text. Ask students:

- "What are some things that a community needs?"

Allow students to brainstorm answers, keeping their discussion focused. List answers on the chalkboard as students name them. Discuss each item and its Rough Rock equivalent in detail, so students become aware of the impact each item has in determining the characteristics of a community.

a) Develop a chart similar to the one on page 28 to help students organize and internalize the lesson information. Begin by placing one or two items on the left-hand column, and one or two items in the right-hand column. Let students fill in the remainder of the chart.

Things a Community Must Have	What Rough Rock Has
• People • Services to meet peoples' needs • Services to meet peoples' wants ...etc....	*(Students should generate and describe each item in this column.)*

7) The following map activity is designed to run over several days. It may, however, be conducted throughout the course of study in Book One, adding new elements as they are discussed in the text.

To help students increase their understanding of relationships between elements in a community, ask them to build a three-dimensional map of the Rough Rock community. Assign different student groups different map-making tasks. This will help them develop social as well as map skills; by working together, they experience one of the key forces that holds a community together.

a) Locate a map of the Rough Rock area (Geological Survey maps are excellent for this).

b) Transfer the map to a large plywood slab, placing all the features from the map onto the board (terrain features, roads, washes, buildings, etc.).

c) Begin cutting out cardboard for the terrain features.[5]

d) Assign groups of students the task of making buildings, etc., for placement on the maps. Other student groups may undertake the tasks of painting the ground, roads, washes, making trees, etc.

e) Plan a field trip to some areas near the Rough Rock community to observe, take and/or draw pictures, etc., of special features such as school buildings, the trading post, dams, windmills, etc. Assign different students the task of making models of these features as necessary.

f) Begin to detail the map with plaster or *paper maché*, paint, figures, etc. Place each in appropriate positions.

g) Display the map. Give it a title and include the date the map was made and the names of students and their contributions. Names of map features should appear in Navajo and/or English, as appropriate. Use manuscript symbols for all lettering.

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[5] See the NAMDC *Navajo Bilingual-Bicultural Curriculum, Grade 2 Teacher's Guide* for suggestions on making this type of map. In addition, the Navajo Currriculum Center has relief maps of Arizona and the United States which might be used for reference purposes.

8) This activity is intended to be conducted after or during the map-making exercise. Refer students to pages 4-5 of the textbook. Ask them to identify the missing elements in the photographs, and to describe what would happen if that community element were not present. Reference to the three-dimensional map will aide in the identification of that effect (for example, "What would happen if we had no dams?" - "No trading post?" - etc.).

You can also help students to predict effects by saying:

- "Today, many people live at the school or in the low-rent housing. What do you think would happen if these houses were not available anymore?"

Students should be able to predict the results of these changs and their relative importance to the character of Rough Rock. For example, although the absence of housing at the school or the low-rent area might make a difference in the "look" of Rough Rock, it would not necessarily destroy the community. The absence of the school, however, or the local chapter, might make a more significant difference in the development of community spirit and in fact might mean that Rough Rock as a community would no longer exist.

9) Activity 8 may be extended to an exploration of the elements important to the development and maintenance of other communities. Students might explore the development of new communities, and the reasons why other communities no longer exist.

10) As a cumulative and evaluative activity, ask students to write a short report on "My Community -- Rough Rock." Write the following outline on the board as a stimulus, and encourage students to follow it:

"My Community -- Rough Rock"

I. Introduction
   a) Where is Rough Rock?
   b) What is the approximate size of its population?
   c) What are its geographical boundaries?
   c) What is the major source of income for the people?

II. Why is Rough Rock a Community?
   a) What are the things that make Rough Rock a community?
   b) Why I live at Rough Rock

Evaluation

Look for elements in the cumulative report which suggest that students can describe Rough Rock's location and the elements which make it a community. They should be able to include a definition or postulate of the concept *community* in their papers.

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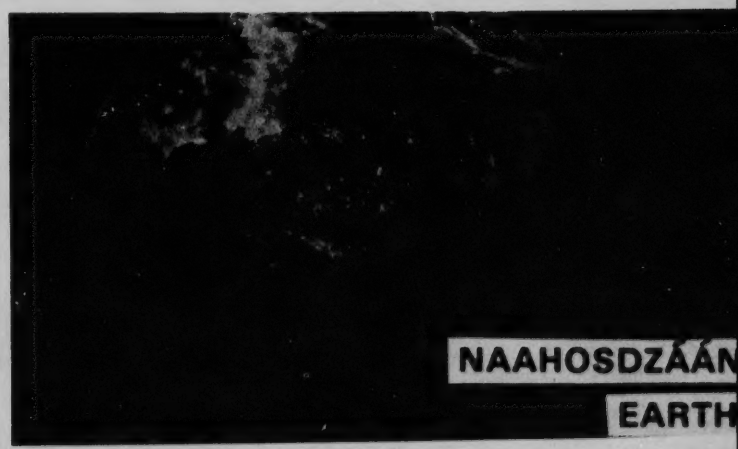

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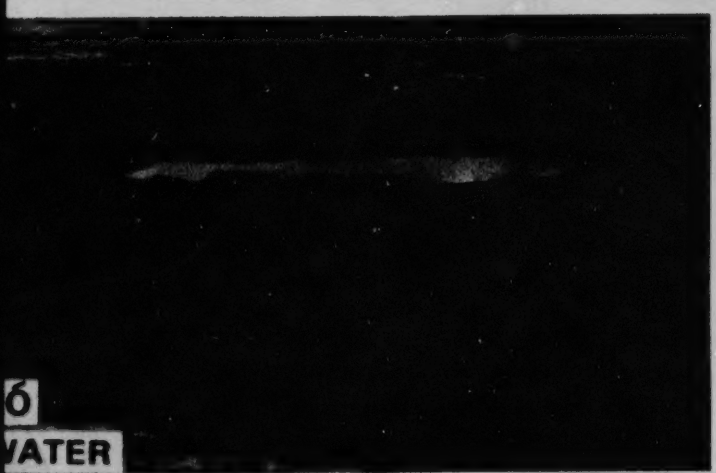

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FIRE

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CHAPTER TWO

Four Elements We Need

LESSON 1

Purpose

Chapter Two introduces and extends understanding of the role of the four elements in our community. The chapter covers the elements in terms of their physical characteristics and interactions. Implicit within the content of the chapter is the cultural significance of the four elements.

Concepts

Chapter Two reinforces the concept of **interaction** and introduces the following concept:

Interdependence. When two or more persons, animals, or things in nature depend on one another for help, improvement or life itself, we say that they are interdependent.

Review the concepts developed in previous activities by following the procedure below.

1) Hold up a picture from the text or photo posters which illustrate the concept you wish to discuss. (p.6 of the text, for example, could be used for any of the concepts except perhaps *cause-and-effect.*)[1]

2) Ask students to identify items in the pictures. If you are discussing the concept of *community*, ask them to group the items according to:
   a) things which a community needs;
   b) things which make a community better;
   c) things which make a community unique;
   d) things which people in a community need;
   e) things which people in a community want.

   If you are discussing *interaction*, ask students to identify what and how various items are interacting. For example, air and water interact to form clouds; water, air, sun and earth interact to create plants; animals interact with the four elements by eating the plants, etc. (In one photo poster, for instance, we see cows drinking from a pond. Interactions in this illustration include: cows drink water and while doing so, trample the ground making it softer; water then seeps deep into the earth; more grass grows because of the cows' manure and softer ground.)

   If you are discussing *interdependence*, ask students to identify the things that are dependent upon each other for support and life.

   Record and label each list. Students should write these lists in their notebooks.

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1 The photo posters for Chapter Two can and should be used for this purpose. See also the "Cause-and-Effect" cards found in the NAMDC *Navajo Bilingual-Bicultural Curriculum Grade 2 Kit.*

Main Idea

The main idea for this chapter and its lessons is:

In order to meet their needs for survival, people must understand and use the four elements.

Skills To Be Developed

1) Acquiring Information
   a) observation
   b) picture analysis
   c) reading
   d) listening
   e) conducting experiments

2) Organizing Information
   a) listing
   b) grouping
   c) labeling
   d) chart-making
   e) notetaking

3) Communicating Information
   a) oral communication
      - discussions
   b) written communication
      - notetaking
      - written reports

4) Using Information
   a) answering questions
   b) drawing conclusions
   c) using conclusions to develop generalizations
   d) using generalizations to make predictions

5) Knowledge
   a) concept development
   b) factual information on the four elements
   c) experimental procedures

6) Social Skills
   a) group discussion
   b) interaction with others in class and small group activities

Objectives To Be Achieved

Upon completion of the activites in this lesson, students will be able to do the following:

1) Name, in Navajo and English (as appropriate), each of the four elements.

2) Demonstrate respect for each element by explaining its importance and describing at least one example of how a person shows respect for the element.

3) Explain by use of a chart how the four elements interact with each other to form something used by people in the community. (For example, students may use the

"Corn Cycle" chart of the Navajo Home Life" posters found in the NAMDA *Navajo Bilingual-Bicultural Curriculum Grade 2 Kit,* to explain how the four elements interact to produce corn, heat a home, dry clothing, or produce material used to make a hogan.)

4) Follow correct procedures for conducting an experiment.

5) When given an effect of misuse or lack of respect for an element, identify at least one cause.

6) When given a hypothetical event such as the drying up of wells in our community, predict how this would affect people, plants and animals in the area.

7 Demonstrate understanding of the principle *k'é* by participating appropriately in class discussions, experiments and chart-making activities.

Materials Needed

To complete the activities, the following materials should be gathered and available when the lesson begins:

1) student textbook
2) butcher paper
3) student notebooks
4) photographs/photo posters
5) marking pens
6) resource person(s) (see Activity 5)
7) Experiment Record form (see page 35)
8) drawing and writing paper
9) balloons (at least one for each student)
10) Chapter Two and Three photo posters
11) magazine photographs of floods
12) NAMDC *Navajo Bilingual-Bicultural Curriculum, Grade 2 Teacher Guide*
13) glass beakers
14) water
15) thermometer

Suggested Time

Allow at least 30-40 minutes for each activity and/or experiment.

Teaching Strategies and Activities

1) Review the vocabulary words on page 28 of the textbook, using a technique similar to that used in developing the concept of *community.*

2) Ask students to read (aloud in small groups or individually, as appropriate), Chapter Two of their textbook. Ask them to answer questions in the text and write answers in their notebooks. When they have completed this task, begin a discussion by asking:
   - "What are the four elements?"
   - "Name each in Navajo (English)."
   - "Which of the four elements do you have inside your body?"

(Students should respond to the last question with, "All four elements are in my body." If they do not, develop a set of questions which will enable them to discover that all four elements are contained in their bodies.)

Ask students to:

a) List some ways in which the four elements are used. At this point the list may be somewhat limited. By the end of the lesson, however, students' lists should be almost limitless.

b) Go through the text and ask students to read their answers to questions on each page. Discuss some, but not all of the answers. Do not discuss the correctness of students' answers, but elaborate on their reasons for making particular answers. Students can correct any faulty notions later in the lesson.

3) Because the four elements are so important in peoples' lives, it is necessary for the elements in a physical sense. (Elementary science texts also contain experiments which can be conducted safely and easily, with very little equipment.)

Before each experiment, hand out the "Experiment Record" form shown on page 35 of this guide. Be sure students use the form and place it in their notebooks. This is important in developing proper experimental technique as well as the skills of organization.

a) AIR 1:

- Give each student a balloon. Ask them to describe it and draw a picture of it it appears when you give it to them.
- Instruct students to blow up their balloons. Again ask them to draw a picture of it as it appears.
- Allow each student to describe the difference between the balloon before and after it was blown up. Then ask:
  - "Why is the balloon different after you blew it up?"
  - "How do you know that something is inside the balloon?"
  - "Can you see it?"
- As a conclusion to the experiment, ask:
  - "What is a way we can find out if there is anything inside the balloon?" Students should suggest ways in which they can find an answer to this question. Look for answers which suggest checking; for example, "We could put a pin in the balloon; if there is air in it, we can feel it coming out the pin-hole."

b) AIR 2:

- Hand out pieces of paper and instruct students to make paper airplanes. Allow students a few minutes to fly the planes inside the classroom, then take them outside to fly them again.
- Discuss any differences you observed in the way the planes flew. Discuss reasons why the planes were able to fly (e.g., air pushing up against the planes' wings as they moved).

EXPERIMENT RECORD FORM

Date of experiment:

Name of experimenter:

Title of experiment:

Materials used in the experiment:

Procedures I followed:

Results that I expected:

What I observed:

What the experiment showed me:

c) AIR 3:

- Students can observe the action of air in the turning of windmills or windspinners.

d) WATER:

- Instruct students to observe the action of water and the results of its action in washes, ditches, ponds, etc. Ask students to list ways in which water is used by people.

- Students should simultaneously recognize the potential danger of water. Use photo posters from Chapters Two and Three (and photographs gathered from magazines) to illustrate the dangers of flooding. Display posters and photographs as part of a reading interest center.

e) EARTH

- Assign groups of students the task of gathering different types of soil and then testing them for their uses. (Refer to the NAMDC *Navajo-Bilingual Bicultural Curriculum Grade 2 Teacher's Guide* for further information on activities to acquaint students with earth, soil and their uses.)

- After students have gathered different types of soil, instruct them to compare their samples with information from encyclopedias. Students should give oral and/or written reports on their findings.

f) FIRE/SUN 1:[2]

- Place water in two glass beakers with a thermometer in each glass.

- After about three minutes, check and record the temperature of water in each glass. Be sure both beakers have been placed in the same environment.

- Take the glasses outside, placing one beaker in direct sunlight, the other in the shade.

- Check and record temperatures in both glasses every 15 minutes.

- After one hour, develop a graph with students which shows how the temperature of each beaker of water changed during the hour.

- Summarize the experiment with the following questions:
  - "What was the difference in temperature of the two beakers of water in the beginning of the experiment?"
  - "At the end of 15 minutes, which beaker had the highest temperatures? At the end of 30 minutes? - etc. . ."
  - "Why was there a difference between the temperature of the two beakers of water?"

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[2]For more activities and experiments concerning the sun and fire, consult the elementary science texts listed in the reference section of this guide.

g) FIRE/SUN 2:

- To verify that the sun was the factor involved in temperature change in the experiment above, you may wish to repeat the experiment, this time placing both beakers in the shade and then both in the sun. Explain to students that in every experiment, there must be a *control*. A control is an element that is just like other elements that are involved in the experiment, except nothing is done to the control. For example, in the second experiment, both beakers were placed in the shade. They provide *controls* which enable students to check the results of their first experiment.

h) INTERACTION OF ELEMENTS:

- Use activities found on pages 345-353 of the NAMDC *Navajo Bilingual-Bicultural Curriculum Grade 2 Teacher's Guide* in conjunction with the "Four Elements" photo posters for this program, to develop concepts on the interaction of the four elements.

4) Invite a Navajo elder from the community to discuss the four elements with students. Ask him or her to address the following topics.[3]
   a) The origin of the four elements.
   b) The role of the four elements in the life of the Navajos.
   c) The "do's and don'ts" regarding the four elements.
   d) Ways in which students can demonstrate respect for the elements.
   e) If the resource person is willing, he/she may help students learn songs about the four elements.

5) After the elder has presented the lecture, review it with students, asking recall questions which help students to internalize significant points and facts brought out in the discussion. (Take notes during the lecture so you will be sure to know what types of questions to ask.)

6) End the lesson with a writing exercise covering the following topics.
   a) What are the four elements?
   b) Which of the four elements is most important?
   c) Why can't we live without the four elements?
   d) Give one example of how the four elements interact.
   e) Give examples of how the four elements are sometimes abused.
   f) What are some possible results if the four elements are abused?
   g) What are some ways we can show respect for the four elements?

7) Supplemental Activities:
   a) Obtain a picture of some interaction between man and the four elements. (The photo posters are a good source for this.) Ask students to describe as much about the picture as they can, including:
      - things that appear in the picture;
      - interactions or events apparent in the picture;
      - ways in which the four elements are involved in the picture.

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[3] Be sure that the season is appropriate for discussion of these topics.

Give each student a chart like the one below.

What I Observe In the Picture	What I Think Is Happening Or Happened
1.	
2.	
3.	

WHAT I CONCLUDE FROM THE PICTURE:

Instruct students to write their answers to the three questions above, in the left-hand column. In the right-hand column, students should write a sentence describing what interaction is portrayed in the picture, and how one or more elements have interacted to cause the event. Below the chart, students should write one or two sentences explaining their conclusion(s) about the picture. This is an actual student response in this activity using the Chapter Twophoto posters:

What I Observe In the Picture	What I Think Is Happening Or Happened
1. Water	It has rained and filled the dam with water.
2. Cows drinking and eating grass.	Water helped grass to grow so cows have come to drink water and eat grass.
3. Clouds in the sky.	

WHAT I CONCLUDE FROM THE PICTURE: When dams are built, water will collect and grass will grow. Cows and other animals can drink the water and eat the grass that might not be there if it were not for the dam. Building dams is one way we can help use water better.

Evaluation

The report of Activity 6 serves as an excellent evaluation instrument. In addition, the supplemental activity will demonstrate how well students have grasped the concept of *interaction*. Finally, check students' notebooks, experiment reports and other written work to show signs of organization and other skills development.

NOTES

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CHAPTER THREE

Weather and Our Community

LESSON I

Purpose

Chapter Three reinforces concepts introduced in other chapters of the text -- in particular, the interaction of elements that causes our community's weather patterns and climate. The concept of *environment* and how it influences the lifestyle of people in the community, is implicit in this chapter. Lessons for this chapter extend and develop these concepts.

Concepts

Concepts from previous chapters are reinforced. Three new concepts are introduced and developed.

1) **Climate.** Climate refers to the type of weather that an area generally has. It is the result of the combination of different types of weather which are most prevalent during any given season of the year.

2) **Weather.** The temperature, amount and type of sunlight, wind and precipitation on any given day.

3) **Environment.** Includes weather and climate, and refers to everything around an individual (plants, animals, land, other people, natural and man-made ojects, etc.).

Teachers should emphasize the distinction between the three concepts throughout this lesson, pointing out how each is different but how all are related and interdependent.

Main Idea

The following main idea is developed in lessons for this chapter:

The climate of a community is important to the survival of the community's members because it determines the natural environment and therefore, influences human activities.

Skills To Be Developed

1) Acquiring Information
   a) observation
   b) picture analysis
   c) reading
   d) research
   e) asking questions
   f) conducting experiments

2) Organizing Information
   a) chart-making
   b) notetaking

3) Communicating Information
   a) oral communication
      - discussion
      - oral reports
   b) written communication
      - notetaking
      - written reports

4) Using Information
   a) generalizing
   b) inferring
   c) interpreting
   d) predicting

5) Knowledge
   a) vocabulary development
   b) knowledge of the causes and effects of weather
   c) knowledge of the climatic regions of the world
   d) research skills
   e) knowledge of types of rain
   f) causes of rain and snow
   g) Navajo explanation of weather
   h) Navajo names for:
      - different types of weather
      - different types of rain

6) Social Skills
   a) group discussion
   b) interaction with others in class and small group activities

Objectives To Be Achieved

Upon completion of the activities in this lesson, students will be able to do the following:

1) Distinguish between climate, weather and environment.

2) Name and describe the five climate types on earth

3) Explain, in writing, to the satisfaction of the teacher, how climate affects the way people live. Included in students' explanations will be examples showing how climate affects homes, clothing, sources of income and human activities.

4) Name and describe Navajo terms for rain, wind and other types of weather.

5) When given a hypothetical change in climate, predict the effects on the Rough Rock community.

6) Explain orally or in writing, how rain/snow is formed.

Materials Needed

These materials should be gathered beforehand and available before the lesson begins.[1]

1) student textbook
2) photographs or pictures illustrating different climates
3) Chapter Three photo posters
4) worksheets
5) flashlight
6) globe
7) encyclopedia
8) student notebooks
9) NAMDC *Navajo Bilingual-Bicultural Curriculum, Grade 2 Teacher Guide*
10) barometer
11) Experiment Record forms
12) large glass tray
13) ground soil
14) water
15) watering can

Suggested Time

Allow 30-40 minutes for each activity.

Teaching Strategies and Activities

1) Review vocabulary words on page 48 of the student text, as necessary.

2) Ask students to read Chapter Three of the textbook. Encourage them to write their answers to questions in the book, and insert them in their notebooks. When students have completed the reading, review their responses, emphasizing the distinction between climate and weather.

3) Refer to the NAMDC *Navajo Bilingual-Bicultural Curriculum, Grade 2 Teacher's Guide,* pages 205-344, to illustrate how climate is determined by the effects of the sun and the way it shines on the earth. Refer to an encyclopedia for drawings and charts which will assist students in internalizing the idea.

4) Follow the procedure below to help students understand the difference between climate and weather, and the means people use to predict weather.
   a) Distribute a chart similar to the one here, to each student. Give the following instructions:
      - "For the next ten days we are going to observe the weather very carefully. The chart I have given you is going to be used to record the weather for each of the next five days. During this time we will also use the information we have learned about Rough Rock's climate and weather, to make predictions about what the weather will be like each day."

[1] See Activity 5 (p. 46 of this guide) for materials needed in "Rain-Making Experiment."

DAILY WEATHER CHART

Date	My Predictions for the Weather	What the Weather Was Really Like
	TEMPERATURE: Wind: HIGH, MED., LOW, NONE Precipitation: HIGH, MED., LOW, NONE Cloud Cover: HEAVY, MED., LIGHT,	TEMPERATURE: Wind: HIGH, MED., LOW, NONE Precipitation: HIGH, MED., LOW, NONE Cloud Cover: HEAVY, MED., LIGHT,
	TEMPERATURE: Wind: HIGH, MED., LOW, NONE Precipitation: HIGH, MED., LOW, NONE Cloud Cover: HEAVY, MED., LIGHT,	TEMPERATURE: Wind: HIGH, MED., LOW, NONE Precipitation: HIGH, MED., LOW, NONE Cloud Cover: HEAVY, MED., LIGHT,
	TEMPERATURE: Wind: HIGH, MED., LOW, NONE Precipitation: HIGH, MED., LOW, NONE Cloud Cover: HEAVY, MED., LIGHT,	TEMPERATURE: Wind: HIGH, MED., LOW, NONE Precipitation: HIGH, MED., LOW, NONE Cloud Cover: HEAVY, MED., LIGHT,
	TEMPERATURE: Wind: HIGH, MED., LOW, NONE Precipitation: HIGH, MED., LOW, NONE Cloud Cover: HEAVY, MED., LIGHT,	TEMPERATURE: Wind: HIGH, MED., LOW, NONE Precipitation: HIGH, MED., LOW, NONE Cloud Cover: HEAVY, MED., LIGHT,
	TEMPERATURE: Wind: HIGH, MED., LOW, NONE Precipitation: HIGH, MED., LOW, NONE Cloud Cover: HEAVY, MED., LIGHT,	TEMPERATURE: Wind: HIGH, MED., LOW, NONE Precipitation: HIGH, MED., LOW, NONE Cloud Cover: HEAVY, MED., LIGHT,

b) Direct students to conduct interviews with long-time residents of Rough Rock. Students should seek answers to the following questions:

- "Has the weather always been like it is today?
- "What is the weather usually like during this time of year? "
- "How do you know what the weather will be like each day?"

c) You may wish to supplement Activity 4b by asking students to read about weather predictions in the encyclopedia.

d) Instruct students to make a list of the information from interviews and their text; this information they will use to make weather predictions. Explain that scientists, when they make predictions, use certain known facts to make their predictions. The information they have gathered and have learned in the activities of this lesson are their *known facts*. These are the basis for predictions. Students' lists might look like this:

CLIMATE

- *Known fact:* The climate of Rough Rock is usually dry, with mild to hot temperatures during the day in summer and fall, and cool nights.

SEASON OF THE YEAR

- *Known fact:* It is late summer (or early fall; whatever season during which this activity is taught).
- *Usual weather during this season:* Days are usually warm with cool nights. Late afternoon thunderstorms are common during this season.

SIGNS OF THE TYPE OF WEATHER

- *Known fact:* By using a barometer we can notice changes which will help us predict the weather. (Explain how a barometer works.)
  Navajos have used different signs to predict the weather; they are:
  - new moon
  - wind
  - clouds
  - previous day's weather
  - color of sky in the morning, . . . etc..

e) For the first one to two days of the weather observation experiment, instruct students to record the weather without "officially" predicting it. This will familiarize them with the chart and its use. Students should fill in the left-hand column with the day's date, and the far right-hand column with the appropriate information.

f) On the third day inform students that they are going to predict the weather for the next day. Ask them to check their records for the first two days of the experiment, then say:
- "When you get up tomorrow morning I want you to write down in this column (point to the middle column of their chart) what you think the weather will be like tomorrow. Write down the temperature, type of wind, type of clouds, and the amount of rain you think we will have for the day. Later in the day we will observe and record the type of weather we actually had for the day.

g) Review students' predictions on each day of the activity, and discuss why they were or were not correct. Be sure to include a discussion of how they made their predictions; in other words, what *known facts* did students use to predict? Keep a record of which know fact(s) were most useful in predicting weather each day.[2]

5) Review pages 37-42 of the textbook. Introduce this activity by asking:
- "Does Rough Rock have a dry or wet climate?"

When students have responded, say:
- "Because we do not get a lot of moisture at Rough Rock, it is important to understand and appreciate how we get rain, and why there is usually little rain at Rough Rock."

Review the rain cycle chart, then conduct the following experiment, using students' Experiment Record forms.

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2 It is possible that knowledge of the climate of the Rough Rock area and general historical weather patterns will prove the most useful in making these predictions. Emphasize this point to students by saying, "Because of its terrain, mountains, elevation, and position on the globe, Rough Rock has a certain type of climate. This means that during a certain season, Rough Rock is more likely to have a certain type of weather. Since the climate of Rough Rock does not change quickly, we can usually predict what kind of weather we will have."

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RAIN-MAKING EXPERIMENT

Explanation: Water is placed in a pan and heated, causing it to evaporate. Another pan containing ice is placed above the heated water. As the heated water vapor rises and hits the cooler pan above, it is changed into drops of water. The water drops remain "stuck" to the upper pan until, like rain drops, they become large enough to fall.

Materials Needed: Heater, two pans, ice, metal stand on which to place the pan of ice.

Procedure:

a) Heat the water so that vapor rises and reaches the pan above.

b) Describe the rain cycle while conducting the experiment, pointing out that the water in the pan is like a lake (or ocean), the heater is like the heat from the sun, the pan with ice is like the sky where it is much cooler, the steam is like the clouds, etc. This will help students to realize the connection between the experiment and events in an actual rain cycle.

c) Instruct students to record the results of the experiment.

d) After the experiment, ask each student to describe (in writing) how rain is produced. As part of this exercise they should be able to explain why it does not rain a lot at Rough Rock (except during particular times of the year). Students should recognize the following:

- During the summer clouds are pushed very high in the sky because of the air rising from the area around Rough Rock, and because of the wind's action around Black Mesa. The hot air also keeps the clouds from becoming large enough to form large drops of moisture and thereby create rain.

* * * * * * * * * * * * * * * * * * * *

6) Review the questions on page 42 of the text. Ask students to cite reasons for their answers.

7) Refer students to pages 40-41 of the text, then ask:
   - "How is female rain different than male rain?"

   To illustrate the difference, follow the procedure below.

   a) Obtain a large glass tray.

   b) Fill it with ground soil from outdoors, and pack soil in the tray but not too firmly.

   c) Elevate the tray on one end and pour water *quickly* over it.

   d) Instruct students to observe what happens and ask:
      - "Where did most of the water go?"
      - "How deep did the moisture go?" (Students might measure the depth.)

   e) Repeat the experiment, but pour the water *slowly* and *gently,* using a watering can or other similar device. Repeat this several times so that the moisture seeps deep into the soil.

f) Repeat the questioning sequence above.

g) End the activity by asking students to complete an Experiment Record form.

8) Following Activities 1-7, begin this discussion:

- "For the past few days we have spent a great deal of time talking about our climate and weather. We have done this because they are very important in making up the environment of our community."

a) Review the concept of *environment*, using the technique for introducing the the concept *community*. Begin a discussion on the importance of environment by saying:
   - "As you know, the environment is everything around us, and because of our environment we eat certain foods, wear certain clothes, live in certain houses, and can do certain things. Look at the picture on page 45. What is the environment like? Is it the same as it is now? What do you think it would be like if our climate was like that? How would things be different?"

b) Continue the discussion, using page 46 as the stimulus. Once students have exhaused their ideas, close the lesson by saying:
   - "In the next chapter we are going to see how the land affects the way we live. We will also discover how people adapt to different environments."

LESSON 2

Purpose

The purpose of Lesson 2 is to introduce students to the generalization that the environment is a major factor in determining how a community develops and what its lifestyle is. This lesson also serves as an introduction to Chapter Four, "The Land We Live On."

Concepts

The concept of *environment* is reinforced and further developed.

Skills To Be Developed

The skills developed in the previous lessons are elaborated in this lesson.

Objectives To Be Achieved

Upon completion of this lesson, students will be able to:

1) Define the concept *environment* as, "Everything around us, both things we can see and things we can't see.

2) When given a photograph of an environmental type, identify it (as desert, jungle, plains, mountains, etc.) and describe the ways in which it is different and/or similar to the Rough Rock environment.

3) List at least five human activities (such as farming, choice of clothing, choice of homes, etc.) which are affected by the environment.

4) Demonstrate understanding of the principle *k'é* by interacting effectively and appropriately in class and small group exercises.

Main Idea

The main idea in this lesson is an extension of that in the previous lesson.

Materials Needed

These materials should be gathered before beginning the lesson:

1) photographs of different environmental regions (arctic, plains, plateaus, jungle, desert, etc.).
2) scissors
3) glue
4) construction paper
5) Chapter Three photo posters
6) marking pens
7) reference materials on climate/environmental zones

Suggested Time

Allow 30-40 minutes for each activity.

Teaching Strategies and Activities

1) Review the meaning of the concept *environment* in the following manner: reinforce this idea, follow the procedure below.
   a) Write the word *environment* on the board. Use both the Navajo and English terminology as appropriate.

   b) Pronounce the word for students.

   c) Ask students to repeat it. Make sure every student can pronounce the word correctly.

   d) Display a photograph of an animal, human or other living thing. (Photo posters can be used for this purpose.) Point to various aspects of the photograph and say:
      - "This _____ (name the object) is part of this _____'s (name the living thing) environment."

   e) Show students three or four more photographs, repeating the sentence above.

   f) Show another photograph and ask:
      - "Can you name some of the things in this photograph that are part of this _____'s (name the living thing) environment?"

      Observe students' answers, watching for a listing which indicates they are aware that everything in the photograph is part of the living thing's environment. Watch especially for air, heat, light and other non-visible things.

      End the activity by defining, with the students, the concept *environment*. Write it on the chalkboard and ask students to copy it in their notebooks.

2) Review the meaning of *environment* as necessary. Review the concepts *climate* and *weather*. When you feel students have an adequate grasp of the concepts, stress in your own words, the importance of environment in determining how people live. To reinforce this idea, follow this procedure:

a) Write the following terms on the chalkboard:
   - Grasslands/Plains
   - Arctic
   - Desert
   - Forest
   - Rain Forest/Jungle
   - Plateau

b) Assign small groups (or allow free choice) to research the types of animals and plants that are found in each of the areas. When students have completed their research, ask them to list plants and animals under the proper heading. Each student group should compare their findings with those of other groups. Make a complete list on the chalkboard.

3) Before class begins, put this chart on a piece of butcher paper:

CLIMATE/ ENVIRONMENT	TYPE OF HOMES	TYPE OF FOOD	TYPE OF CLOTHES	TYPE OF ECONOMY/ INCOME	TYPE OF ACTIVITIES

a) In the first column, list several climates/environments with which students have become familiar in the course of previous activities.

b) In the second column, ask students to predict the type of homes that people living in that environment would build.

c) Continue with student predictions for each column in each environment type.

d) Review students' predictions and their reasons for making those predictions.

4) Assemble a number of references for students (books, photographs, magazines, etc.) on groups of people, homes, animals, plants, etc., for each climate/environment covered in the preceding lessons. Assign student groups the task of researching their predictions from Activity 3. Each student group should look for examples of natural as well as man-made objects which support or reject their predictions. Allow a full social studies class for this activity, then instruct students to prepare a short report on their findings. Their report should cover:

a) the accuracy of the predictions;

b) a description of any special feature of the climate/envirnment, both natural and and man-made.

c) a list of the predictions and the reasons why they were accurate or incorrect.

Below is a sample of one student group's work.

Climate/Environment

Arctic

Original Predictions

Types of homes: The people in the Arctic live in homes made of wood that are very warm.

Information After Research

In large Arctic cities and towns where there is electricity and fuel, people live in a house very much like ours. But, some places don't have these things, and people have to get things themselves to keep warm. These people build their houses differently.

Eskimos and some Indians build houses out of sod because that is warmer. But they don't build large fires because there isn't much wood to burn. So their houses have to be very warm. Sometimes they build snow and ice houses. They are used to it and it keeps them warm.

d) You may wish to end this activity by asking students to mount pictures of each climate/environment type. Their collages should include examples of people, plants, animals, man-made structures and alterations of the environment. Mount the collages under the title, "Environments of the World."

5) As a "Wrap-up" and evaluation of the lesson, discuss the following topics with students:

a) What would Rough Rock be like if its climate were like _____ (name a different environmental zone)?

b) How would the people be different?

c) What kind of clothes would they wear?

d) What kind of homes would they live in?

e) What kind of food might they eat?

f) What might happen to the animals that live in the Rough Rock area now?

Evaluation

The posters, reports, and participation in the discussion above should give you a good indication of how well each student has grasped the concept and its relationship to how people live. Students should be able to demonstrate mastery of each of the objectives.

NOTES

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CHAPTER FOUR

The Land We Live On

LESSON 1

Purpose

In previous chapters students were introduced to a number of concepts and ideas about *community, weather* and *environment*, and how they interact. Many of the activities and exercises for these chapters were designed to lead up to the final chapters of the text, providing students with a foundation from which to explore the relationship of themselves to the land and the people who live on that land.

Chapter Four discusses, in detail, the land and the life it supports. The material in this chapter extends concepts of *environmental effects* to plants, animals and humans. Lessons in this section of the *Teacher's Guide* reflect these extended concepts.

Concepts

Key concepts of previous lessons are reinforced. A new concept, *adaptation,* is introduced.

> **Adaptation.** Plants, animals and humans are able to survive by using things in their environment to grow and reproduce. Many plants and animals can survive and reproduce only in certain environments. However, man, some plants and animals are able to survive in many types of environments because they can adjust their needs to changes in the environment. Man, through cultural activities, is able to change the environment to meet his needs. This ability of living things to 1) modify their activities according to environmental demands, and/or 2) modify the environment to meet their own needs, is called adaptation.

Main Idea

The main idea of the previous chapter is further developed in lessons and activities for Chapter Four.

Skills To Be Developed

1) Acquiring Information
   a) observation
   b) picture analysis
   c) reading
   d) research
   e) listening

2) Organizing Information
   a) chart-making
   b) notetaking

3) Communicating Information
   a) oral communication
      - participating in discussions
      - giving oral reports

b) written communication
- written reports
- notetaking

4) Using Information
   a) making inferences
   b) making generalizations
   c) making predictions

5) Knowledge
   a) defining *climate*
   b) identifying major plants and animals near Rough Rock community
   c) defining *adaptation; niche*
   d) naming local landforms

6) Social Skills
   a) group discussion
   b) interaction with others in class and small group activities

Objectives To Be Achieved

Upon completion of the lessons and activities of Chapter Four, students will be able to do the following:

1) Explain the relationship between climate/environment and types of plants that are able to survive in a given environment. Students will be able to explain how the amount of water, temperature and elevation (altitude) affect plants and animals which live in the local environment.

2) Define the term *niche* and explain why some plants and animals survive in the Rough Rock environment and others do not.

3) Illustrate the interdependence of plants and animals and their dependence on weather, climate, etc., through use of a simple chart.

4) Identify major plants and animals in the Rough Rock environment, and explain their relationship to the people who live here.

5) Illustrate the concept *adaptation* by giving examples of how some animals (including humans) move or change their activities when the weather changes. Students will also be able to provide examples of *human adaptation* which show how humans change their environment.

6) Correctly utilize skills from other subject areas in answering specific questions from the reading.

Materials Needed

The following materials should be gathered and available when the lesson begins:

1) student textbook
2) worksheet (see pages 55-56 of this guide)

3) reference books (encyclopedia, *The Living Earth* series, *Plant Communities of Rough Rock*)[1]
4) butcher paper
5) marking pens
6) three-dimensional map
7) atlas
8) Chapter Four photo posters
9) measuring stick
10) photographs or pictures of the San Francisco Peaks

Suggested Time

Allow at least 30-40 minutes for each activity.

Teaching Strategies and Activities

1) Review and introduce the vocabulary on page 76 of the textbook.

2) Gather and display, with captions, a number of pictures of plants, animals and land forms of the Rough Rock area. (Use Chapter Four photo posters and *Plant Communities of Rough Rock* for this purpose.)
   a) Encourage students to recall and discuss any experiences they had had with the the displayed material.

   b) Draw students' attention to the three-dimensional map they developed in Chapter One, Lesson 2 (Activity 7). Point out the approximate location of land features shown in photographs; indicate where plants and animals are found. (Continue to use this map as a reference throughout the lesson.)

3) Allow students time to read the entire chapter, including students' questions. When they have finished reading, hand out a worksheet with the following questions, and instruct students to answer the questions. Collect the worksheets, but do not correct incorrect answers. Students should correct their own answers at the conclusion of the lesson.

SAMPLE WORKSHEET

What is a niche?
(*Look for answers which include the definition on page 65 of the text.*)

What kinds of things are in an animal's niche?

What is the elevation of Rough Rock?

If all the food of the (name an animal covered in the text) disappeared, what do you think it would do?

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[1] *The Living Earth* is a series of 20 colorfully illustrated volumes on: *Desert Life, Forest Life, Natural Man, Every Living Thing, Invisible World, The Earth's Crust, The Air Around Us, World of Plants, Grassland Life, Seas and Oceans, Rivers and Lakes, Mountain Life, Polar Life, Island Life, Nature In the City, Web of Life, Pollution, Conservation, Life In the Future* and *Guide and Index*. The last book (which is cited in the reference section of this guide and is currently available at the Rough Rock Elementary School Library), contains a key to individual volumes in the series that can help you identify the individual volume(s) you may wish to include as supplementary sources here. *Plant Communities of Rough Rock* is published by the Navajo Curriculum Center and available directly from the Rough Rock School.

(Answers to this question will help you determine the extent to which students can use their knowledge to make predictions; it will also give an indication of their grasp of the concept adaptation.)

Pick out an animal or plant that can be found near Rough Rock, and explain how it is able to survive and how it is used by the people here.
(Answers should help determine how well students understand the concept of interdependence.)

4) Instruct students to reread pages 49-52 of the text. Review the content of the material by asking students to answer questions on pages 50-51.

   a) It is often difficult for students to comprehend large numbers (such as 500 ft.). To facilitate their understanding, undertake the following activity:
      - Measure the tallest student in the classroom.
      - Cut out a piece of butcher paper that length.
      - Write the student's height on the blackboard.
      - Go outside with students. Using the cut length of butcher paper, measure 500 ft. Ask students to count the number of sheets it took to go 500 ft., then ask:
        - "How many times taller is Black Mesa than _____ (name student)?"

   b) Other students may wish to figure out how much taller Black Mesa is than they are. Allow them to figure this during "free time."

   c) Review the meaning of *elevation.* Students should write the meaning in their notebooks.

   d) After students demonstrate they understand the meaning of *elevation,* ask them to go through an atlas[2] and check the elevation of various towns, cities, mountains, etc.

   f) Develop a simple chart outlining different towns, etc., and their elevation.

5) Using the chart from Activity 4f, develop a bar graph showing the various towns and their elevations. You may wish to generate a series of questions such as the following:
   - "Which town (or city, mountain) is the highest?"
   - "Which is the lowest?"
   - "Which town is about the same elevation as Rough Rock?"
   - "Which is the tallest mountain on our chart?"
   - "Which is the lowest?"

   (NOTE: These types of questions will help students develop the ability to compare and contrast various facts. This is an important skill in many subject areas. This

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[2] A particularly appropriate reference for this activity is *The Navajo Atlas: Environments, Resources, People, and History of the Diné Bikeyah* by James M. Goodman (Norman: University of Oklahoma Press, 1982). This text is currently available at the Navajo Curriculum Center.

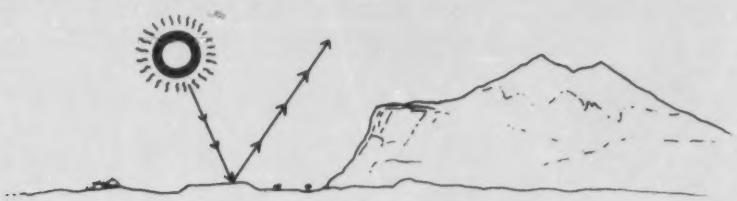
questioning pattern is also one that is often used in standard texts, and it is important to give students experience with such questions. The development of graphs is a skill that is easily transferable to mathematics.)

6) Review the questions on page 53 of the text. Record students' answers on a large piece of butcher paper, then ask them to read pages 54-61.

   a) Ask students to check their worksheets and correct any misinformation they may have recorded.

   b) Be certain that students understand the relationship between elevation and types of plants/animals. Point out such facts as the association between elevation and temperature and rainfall. Ask questions such as:
      - "Why do you think it is cooler at higher elevations?"
      - "Why is there more rain at higher elevations?"

   c) Use a similar illustration to the one below to explain the reason for cooler temperatures at higher elevations. Instruct students to:
      - "Look at the illustration. Temperature is determined by the amount of direct sunlight that hits the earth. You will remember from our discussion earlier that the more direct sunlight, the higher the temperature. The higher the elevation, the more the sunlight is changed, so less heat is transferred to the air. Therefore, it is cooler."



   d) Display photographs of the San Francisco Peaks. Ask students to check their answer to the question on page 57 of the text, against their earlier guess. Correct any incorrect responses.

7) Review the information on pages 58-64 of the text, and answers to the questions on the worksheet that refer to these pages. Discuss the material as necessary. Supplemental books (e.g., *The Navajo Atlas*), photographs and other visual aides will be helpful to students in assimilating the information. Create an interest center with these supplemental materials.

8) Ask students to reread pages 65-67 of the text, with the following question in mind:
   - "What is a niche?"

   a) After a few moments, ask:
      - "Who can define *niche*? Find the definition and read it to me." (You may wish to ask several students to respond.)

   b) Write the definition(s) on the chalkboard. Instruct students to copy it in their notebooks.

9) Instruct students to reread pages 67-74 of their text. Encourage them to note the characteristics of each animal's niche. They might use the following format for their notes:

NAME OF ANIMAL:

PLANTS IN THE NICHE:

WHAT THE ANIMAL EATS:

TYPE OF ANIMAL "HOME":

(NOTE: The text does not provide all of the above information. For some animals, especially coyote and mountain lion, the student must use information regarding other animals to draw conclusions. This is intentional as an exercise in deducing proper information. Check to see how well students are able to use information to draw appropriate conclusions.)

10) Review the *niche* of several local plants and animals, then ask:

- "What do you think would happen to the cactus if it suddenly got very cold all year long, or if it rained alot more than it does?"

Students may respond by saying, "It will not live." Do not end the discussion here; encourage students to explain why the cactus would not live in the cold. Look for responses that suggest that the cactus skin, or tissue, would freeze and be unable to store water, etc.

a) Continue with this type of discussion, covering a number of plants and animals until you feel students recognize that some plants and animals do not adjust well to environmental changes.

b) Review the information on page 69 of the text, which covers an animal that can change fur thickness with seasonal and dietary changes. Encourage students to identify other animals that can change, or *adapt* to their environment. Make a list of various animals and ask students to identify how each adapts to changes in weather, elevation, etc.

Evaluation

Students' reports, written and oral responses to class discussion, reading and picture analysis provide an adequate indication of the degree to which they have internalized lesson concepts.

LESSON 2

Purpose

Elevation is a concept that is often used, but one which is often difficult for students to understand. The purpose of this lesson is to expand upon the development of this concept in the previous lesson, and to extend students' understanding of this term.

Concepts

Concepts of the previous lesson are reinforced. In particular, the relationship between elevation and adaptation is stressed.

Main Idea

The main idea of previous lessons is reinforced.

Skills To Be Developed

1) Acquiring Information
   a) map-reading
   b) observation
   c) notetaking

2) Organizing Information
   a) chart-making
   b) graphing

3) Using Information
   a) using facts to answer questions

4) Knowledge
   a) defining *elevation*
   b) defining *contour map*

5) Social Skills
   a) group discussion

Objectives To Be Achieved

At the end of this lesson, students will be able to do the following.

1) Define the term *elevation.*
2) Explain the difference between *height* and *elevation.*

Materials Needed

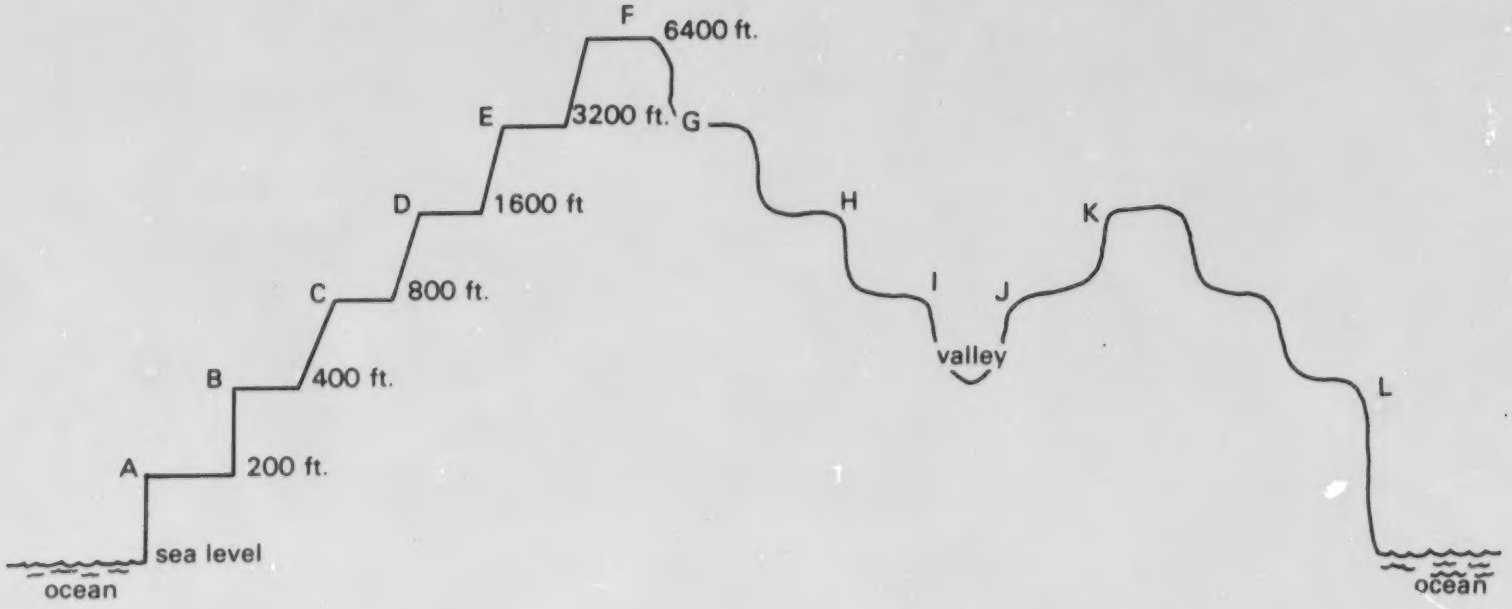
1) drawing similar to the one on page _____ of this guide.
2) state road map
3) U.S.G.S. map, showing Rough Rock - Black Mesa area
4) marking pens
5) reference books such as encyclopedias

Suggested Time

Allow 30-40 minutes for each activity.

Teaching Strategies and Activities

1) On the chalkboard, draw a diagram similar to the one on the next page.
   a) Begin discussion by saying:
      - "This is a drawing of a make-believe country as it would look if it were sliced in half from top to bottom. It is drawn this way to help you understand an important geographical concept."
      - "In social studies we are often interested in a community's environment because it helps us to know more about people and how they live."
      - "Look at the drawing. What is the highest point in this country?" (*Point F*)


F
6400 ft.
E
3200 ft.
G
D
1600 ft
H
K
C
800 ft.
I
J
B
400 ft.
valley
L
A
200 ft.
sea level
ocean
ocean

66

67

- "How high above sea level is it?" (*6,400 ft.*)
- "How high above sea level is a town at point C? At Point I?" (*800 ft.*)
- "What is the height above sea level of a town located in the valley, between Points I and J?" (*400 ft.*)

b) After students answer these questions, write the following on the chalkboard:
- "How high above sea level is Point C?"

c) When students answer this question, say:
- "In order to shorten this question (on the chalkboard), we can say, 'What is the elevation of Point C?' "
- "The word *elevation* means 'height above sea level.' So if we say, 'The elevation of Point C is 800 ft.,' we mean that it is 800 ft. above sea level, or 800 ft. higher than the ocean."

d) Direct students' attention to page 51 in the textbook, then ask:
- "What is the elevation of Rough Rock?"
- "How many feet above sea level is Rough Rock?"

2) Write the name of each of the 50 United States on separate pieces of paper. Ask students to choose a piece of paper, then instruct them to find the name and elevation of the highest point in their state. (Students should consult encyclopedias and/or references for this.) Students may also be asked to find the lowest point in their state.

3) Display a state road map and a U.S. Geologic Survey map in the classroom. Explain that the road map is usually used by people to find their way. Elevation is not as important in a state map, and is only included as additional information or for important mountains and peaks. Then explain that some people need more information than a road map provides. Ask:
- "Can you name some people who might need this information?"
- Students' responses might include pilots, hikers, miners, construction crews, lumber jacks.

a) Continue the discussion by saying:
- "These people need a map that shows the elevation of many points. For this they use a map like this (refer to the U.S.G.S. map). This map is called a *contour map.*"

b) Explain that each line on the contour map represents the elevation of the land at certain points. Mark off two of these lines with a red marker, and explain that the area between the two lines is approximnately the same elevation. The next line indicates a rise in the elevation.[3]

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[3] It is important to help students recognize that the elevation at Rough Rock and across Black Mesa is *variable* rather than *constant.* The figures 6,500 and 7,037 are used in the text to simplify the presentation, but elevation figures from the lowest point near Rough Rock to the highest on Black Mesa range from 6,000 to nearly 8,000 ft. Students should discover this as they study the U.S.G.S. map. The U.S.G.S. also has an excellent brochure on how maps are made. You may wish to use this as a supplement to this lesson. In addition, see the NAMDC *Navajo Bilingual-Bicultural Curriculum Grade 2 Teacher Information Book,* p. 226.

LESSON 3

Purpose

Navajos, like many other Native Americans, refer to the earth as "Mother Earth" (*Nahodszáán*). A noted Navajo philosopher, Mike Mitchell, has said of this concept: "She is the source not only of our livelihood, our food, our clothes, material for our homes, our warmth, but also of our very spirit."

Today, school and other activities take many children away from their homes for extended periods of time. Thus, these children do not have the same opportunities to develop values associated with the land. Lesson 3 seeks to reinforce the concept of respect for the land and the things which live on it.

Concepts

The concepts of *cause-and-effect* and *interdependence* are reinforced. The concept of *respect* is introduced.

> **Respect.** Right thinking and good actions toward all living and non-living (inanimate) things around us, is the core of a good life. Respectful relationships underly all interactions between an individual and his/her environment.

Main Idea

The main idea of Lesson 1 is reinforced in Lesson 3.

Skills To Be Developed

The skills of Lesson 1 are continued.

Objectives To Be Achieved

Upon completion of the activities of Lesson 3, students will be able to do the following:

1) Demonstrate respect for their land by listing ways in which people abuse the land, and then providing ways to combat that abuse.

2) When given an example of an abuse of the land, provide a statement as to its consequence.

3) Encourage others to show respect for the land by creating posters explaining why it is important to respect the land.

Materials Needed

1) "Cause-and-Effect" cards from NAMDC *Navajo Bilingual-Bicultural Curriculum Grade 2 Social Studies Kit*
2) Chapter Four photo posters
3) butcher paper
4) marking pens, crayons
5) trash collected from around the school campus
6) poster board(s)

Suggested Time

Allow 30-40 minutes for each activity.

Teaching Strategies and Activities

1) Invite a Navajo elder to discuss in class the importance of respect for the land. As part of this activity, you may wish to take a field trip to various important locations near Rough Rock, and ask the speaker to discuss the balance of nature in that area. The following are some suggestions for topics.

   - "What you should do when you want to use a plant or other living thing."
   - "How Navajos use various plants and/or animals."
   - "Ways to keep plants and animals healthy."
   - "Things that people do today which cause poor grazing grass, poor crops, poor livestock."

   a) Take notes during the lecture and prepare a simple worksheet for students to complete at the conclusion of the lecture.

2) Review the concept of *cause-and-effect* as necessary.

   a) Introduce the terms *abuse* and *respect,* using a technique similar to that used in previous lessons to introduce important concepts.

   b) Hold up one of the "Harmful Effects" cards from the NAMDC *Navajo Bilingual-Bicultural Curriculum, Grade 2 Kit* and ask:
      - "Is this a result of *abuse* or *respect?*"

      (NOTE: Students should clearly indicate that the illustation depicts the result of abuse. When asked why, they should be able to give answers which suggest that littering, misuse of the land by over-grazing, cutting too many trees, or polluting the air is disrespectful. If their answers do not consider these factors, it is likely that they are not serious about the discussion. In this case, remind students of the Navajo elder's remarks and stress the importance of the subject matter.)

   c) Follow the same procedure using a "Helpful Effect" card.

   d) Divide the class into groups. Give each group a set of "Cause" cards and the corresponding "Effect" card. (Chapter Four photo posters can also be used in this activity.) Ask each group to write a short story about the cards, describing action, who is doing it, what they are doing and why, and what its result is. (This exercise will develop writing skills as well as increase students' awareness of the need to respect the land.)

3) Begin this activity by asking:
   - "What happens when people don't show respect for the land around them?"

   (Refer especially to the campus area and litter that is often present.)

   a) Take the class on a "tour" of the campus area, around the trading post, etc. Point out areas where trash and/or litter has accumulated because of lack of respect.

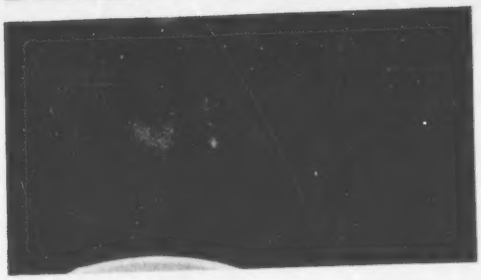
   b) Ask students to collect items of trash while on the tour. Inform them that the trash is to be used in the next activity, as part of a poster on respect for the land.

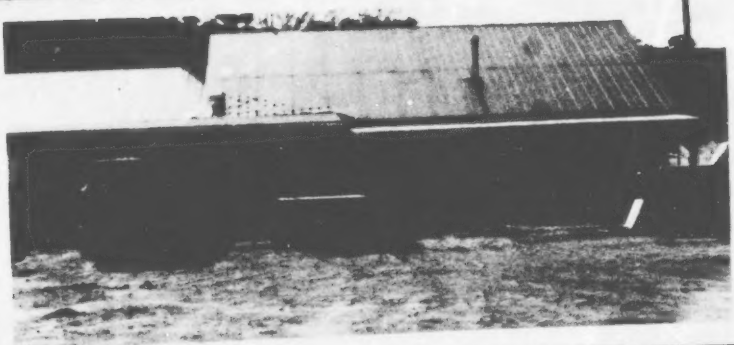
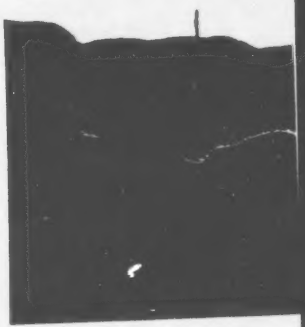
4) Hand out poster boards. Allow students to work individually or in small groups. Instruct them to utilize the collected items from Activity 3 with marking pens, crayons, etc., to create a poster which depicts the effects of respect/abuse of the land.

Evaluation

Students' oral and written responses following Activities 1-2 serve as effective evaluative instruments. Use the posters as an evaluation of Activities 3-4. Note students' creativity and ability to express themselves regarding the concepts covered in this lesson.

NOTES



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CHAPTER FIVE

People and Our Community

LESSON 1

Purpose

Chapter Five of the text is a review chapter in many respects, reinforcing the concepts and ideas of previous chapters. It also acts as an introduction to Book II of the fourth grade Navajo social studies program. Lessons for Chapter Five demonstrate how all elements of the Rough Rock area interact to form a community.

Concepts

Concepts of previous chapters are reinforced. In particular, the concepts of *community, interdependence* and *interaction* are emphasized. Lessons for Chapter Five introduce a new and important concept: *cooperation.*

Cooperation. When people work together and actively participate to solve mutual problems, we refer to their actions as cooperation.

Main Idea

A community is made up of many different people, who work together to solve their problems.

Skills To Be Developed

1) Acquiring Information
   a) observation
   b) reading
   c) interviewing
   d) listening

2) Organizing Information
   a) notetaking
   b) listing
   c) grouping
   d) labeling

3) Communicating Information
   a) oral communication
      - participating in discussion
      - interviewing
   b) written communication:
      - notetaking
      - written reports

4) Using Information
   a) making inferences
   b) making generalizations
   c) making predictions

5) **Knowledge**
   a) vocabulary development
   b) concept development

6) Social Skills
   a) group discussion
   b) interacting with others in class and small group activities

Objectives To Be Achieved

Upon completion of the activities for Chapter Five, students will be able to do the following:

1) Cite at least two examples of how people of Rough Rock cooperate to solve mutual problems.

2) Name at least two ways in which they (students) contribute to their community.

3) Define to the teacher's satisfaction the concept of *cooperation*.

4) When asked, "What are the resources of the Rough Rock area that help us solve our problems?", list animals, plants, earth, air, sun, water, and people.

5) Distinguish between *wants* and *needs*.

6) Demonstrate the concept of *cooperation* in their interactions with classmates.

Materials Needed

1) butcher paper
2) marking pens
3) student text
4) resource people (see Activity 5c)

Suggested Time

Allow at least 30-40 minutes for each activity.

Teaching Strategies and Activities

1) The distinction between *wants* and *needs* is an important one. Use the following procedure to introduce this difference.

   a) Write these terms on the chalkboard:
      - family
      - food
      - water
      - air
      - oranges
      - candy
      - shelter
      - pop
      - movies
      - medicine

      (Extend the list if you wish.)

b) Point to one of the terms on the board and ask:
- "What would happen to you if there were none of this?"

If the item is something that students need to live, grow or remain healthy, write the term on the right side of the original list. If it is something that makes students happy or provides recreation (e.g., movies, pop), write the term to the left of the original list.

a) When you have gone through the entire (original) list, point to the list on the right and ask:
- "Are these things that you must have in order to stay alive or healthy?"

When students respond with, "Yes," say:
- "Then we call these things *needs*.

b) Point to the other list and ask:
- "Are these things that make you happy or give you something fun to do?"

Students should respond with, "Yes." Then say:
- "We call these things *wants*. People in a community have both *needs* (things they must have to stay alive and healthy) and *wants* (things that make them happy or make life better).

2) Review the vocabulary for Chapter Five as necessary. Review the concepts *k'é* (see page 19 of this guide), *community, interdependence* and *interaction* as necessary. Introduce the new concept, *cooperation,* using the same technique as was used to introduce other key concepts. Be sure that each student understands the concept.
a) Write the following on the chalkboard:

HOW WE COOPERATE WITH EACH OTHER IN THE CLASSROOM

Problem *Our Actions*

---

b) In the first column, write down some "problems" such as "dirty chalkboards," "noisy classroom," "need for papers," "messy classroom," etc. For each problem, ask students to devise an action that they can do which demonstrates cooperation in solving the problem.

c) Post the list.

3) Write the following on butcher paper or on the chalkboard: "The Resources of Rough Rock."

   a) Assist students in devising a list of resources in the Rough Rock area. Do not correct the list. Post it and refer to it after students complete their reading.

4) Instruct students to read pages 77-79 of the textbook. Ask the following questions:
   - "How are people like animals?"
   - "How are they different?"

   a) Direct students to reread the pages above and to quote from the text. Then ask:
      - "What are some of the reasons that people can make changes?"

      Students' responses might include:
      - People have brains.
      - People learn from others.
      - People can move and can do things that animals cannot do.

      If students do not give these responses, do not provide the answers for them. Later, as they read the text and participate in activities, these ideas will emerge. In addition, students should eventually realize that people can make changes because they work together to solve problems.

5) Direct students to read pages 80-82. Review the meaning of *resources* found on page 80 of the text, as necessary. (NOTE: Later, in Lesson 5, you and students will group the list of resources from Activity 3 into three major groups entitled: "Natural Resources," "Human Resources," and "Man-Made Resources." Refer to the list made in Activity 3, and add to it if necessary.)

   a) Refer to page 81 of the text and ask:
      - "What do you think is happening in the picture on the left?"
      - "What is being told?"
      - "What do you think the children are learning?"

   b) Repeat the questions for the picture on the right, then ask:
      - "What other ways do people learn about how to use resources?"

   c) Assign groups of students the task of researching various agencies, etc., which help people use resources wisely. Navajo elders and medicine men should be included as research sources. Ask students to devise a list based on their research. If they have difficulty in doing this, you may ask questions similar to the ones below:
      - "How did windmills get put up?"
      - "Who takes care of the roads?"
      - "Who decides who can chop down trees to use for fuel or lumber?"
      - "Who builds dams?"

   d) Ask each student group to give an oral report on their findings.

LESSON 2

Purpose

Lesson 2 is an extension of Lesson 1. Its main focus, however, is on the family and the student's role in the family. Skills and objectives for this lesson are similar to those of Lesson 1.

Concepts

In addition to the development of concepts listed for Lesson I, Lesson 2 introduces a concept covered at earlier grade levels: *family*.

> **Family.** The family is the basic biological and social group of any society. Although each society possesses its own unique system of family roles, kinship systems and social structure, the family remains the source of fundamental learning and socialization in a society.

Main Idea

The main idea of Chapter Five is extended to include *family* as an integral part of the community.

Skills To Be Developed

Refer to the skills list for Lesson 1 (Chapter Five).

Objectives To Be Achieved

Upon completion of this lesson, students will be able to:

1) Define *family* using a definition similar to the concept statement above.
2) Use correct kinship terminology in discussing family members (thereby demonstrating this aspect of the principle *k'é*.)
3) Describe their role in the family.

Materials Needed

1) *National Geographic* or other, similar magazines.
2) *Kinship and Clanship* series.[1]
3) NAMDC *Navajo Bilingual-Bicultural Curriculum, Grades 1-2 Teacher Guides*

Suggested Time

Allow 30-40 minutes for each activity.

Teaching Strategies and Activities

1) Prior to this activity, gather a number of pictures of families from *National Geographic* or other magazines. (Chapter Five photo posters may also be used.) Display the pictures of family groups.
   a) Point to various members of the families illustrated and ask:
      - "What is this?"
   b) Students should respond, "This is a man," or, "This is a father," etc. Then ask:
      - "What is this man's role?"

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[1] This series of K-8 Teacher's Guides, written by Shirley M. Begay, contains numerous activities for the study of Navajo kinship and clanship, and is available at Rough Rock's Navajo Curriculum Center.

c) Continue with this procedure until all members of the family group are discussed, then ask:
   - "What do we call this group?"

d) Students should respond, "We call this group a family." Then ask:
   - "How does a family help us to solve our problems?"

e) Make a list of students' responses.

f) Encourage students to compare the role of families by asking:
   - "Are all families the same?"
   - "How are they the same?"
   - "How are they different?"

g) Extend the discussion by comparing students' families with the ones pictured. (NOTE: Students should suggest similarities such as, "families teach their children," "families provide food, shelter and clothing," "families teach their children right and wrong." Differences might include, "some families are bigger than others," "some families don't have any boys (or girls)," "some families are rich and some are poor," "some families wear different clothes.")

   - Comparing and contrasting is an important element in the development of ideas and generalizations. Check students' responses for important details.

2) Instruct students to read page 83 as a source of the role of family members.

   a) Discuss the role that the children play in their families' activities, emphasizing the aspects which show cooperation.

3) Review the NAMDC *Navajo Bilingual-Bicultural Curriculum Grades 1-2 Teacher's Guides* for suggestions on activities involving the family.

4) Instruct students to read page 84 of the text.

   a) Review the definition of clan and the relationships by clan present in the classroom. (See *Kinship and Clanship* series).

   b) Make a list of the clans in the classroom.

   c) Develop a bar graph to indicate the relative numbers of various clan members.

   d) Assist students in developing a list of ways in which clan members help each other.

5) End this series of activities by asking students to write a short report which answers the following questions.
   - "Who are the people who help you and your family to solve problems?"
   - "How do they help you?"

   a) As an aid to this activity, set up hypothetical situations such as:
      - "Your father and mother decide that the house you are living in is too msall. Who in the community, or elsewhere, might come to help your family build a new house? How might they help?"

LESSON 3

Purpose

Lesson 3 continues development of the concept and skills in previous lessons. In addition, the idea is introduced that roles within the community are specialized, and that not everyone in a community performs the same job(s). Through exploration of where goods and services needed by a community derive and what they cost, this lesson provides knowledge of what makes a community function harmoniously.

Concepts

The following concepts are introduced:

1) **Role.** The job or activity performed by an individual that helps community members solve problems.

2) **Product.** The object or service that is used by people in a community.

3) **Producer.** Someone who makes, grows or provides objects for use by others.

4) **Service.** Useful work done by someone for another.

Main Idea

The main idea for previous lessons is maintained in this lesson.

Skills To Be Developed

Refer to the skills list for Lesson 1. (Chapter Five).

Objectives To Be Achieved

Upon completion of this lesson, students will be able to do the following.

1) Define *role* as the job or activity that an individual does to help others.

2) Describe several specialized roles in the community.

3) Distinguish between the goods produced for use by the community and services provided for the community by local residents and outsiders.

4) Define *product, producer* and *service.*

5) Describe several reasons why a community might cease to exist.

6) Compare the costs of goods and services provided by local residents and outside agencies or individuals.

Materials Needed

1) student text
2) student notebooks
3) map (see Activity 3d)
4) dictionary
5) local resource people (see Activity 4)
6) reference materials on "ghost towns"

Suggested Time

Allow 30-40 minutes for all activities except Activity 4, which requires several days for students to conduct research.

Teaching Strategies and Activities

1) Ask students to read pages 85-90 in their textbook. Review the vocabulary as necessary.

2) Using information from pages 85-90 of the text, help students develop a list of different jobs that people do which help the community. The list should be comprehensive. Ask students:
   - "In a community there are two types of jobs that people do which help the community. One is called *producing*. What does producing mean?"

   a) Students should look up *produce* (*producing*) in an English dictionary. Explain how adding *-ing* at the end of the word slightly alters the word's meaning. Compare the English term to the Navajo *ál'į*.

   b) Review the list of jobs performed by Rough Rock residents. Put a "P" next to the jobs which produce goods.

   c) Review the list again and introduce the term *service,* using a similar technique to that outlined above. Put an "S" next to those jobs which provide a service.

   d) End the activity by rewriting the list so that there is a column of jobs under the heading, "Service Provided" and a second column under "Goods Produced."

3) Review the lists from the preceding activity. Add a new column entitled, "Product." Define the term *product* as, "The *service* or *good* which is provided and used by the people of the community ." Ask students to write the definition in their notebooks.

   a) Identify the *product* and provider for each service and good.

   b) Review the list and ask:
      - "Are there any goods or services which we use in Rough Rock that are not provided by the people of Rough Rock?"
      - "What are they?"

   c) Make another list reflecting students' responses. Compare the lists, then ask:

      - "From studying the two lists, do you think that everything used in Rough Rock is produced in Rough Rock? What does this tell you about the ways in which a community meets its needs and wants?"
      - "Do you think Rough Rock could exist without the goods and services produced by other communities?"

      (NOTE: Students should recognize that no community is completely self-sufficient and has everything it *wants,* even if it has everything it *needs.* A community's wants must also be met if it is to survive.)

   d) At this time you may wish to review why some towns become "ghost towns." Assign student groups to research "ghost towns." Their research should include:

- Name of the ghost town (for example, an Anasazi village).
- A simple map, showing the town's location and proximity to Rough Rock, with a statement as to direction and distance.
- A statement which indicates how and why the town or village was founded.
- A statement which indicates why the town or village no longer exists.
- Estimate population at the height of its existence.
- A statement as to why or why not the town or village might be "reborn."

4) Review the list of producers, service providers and products again. Add another column, *price*. Assign students the task of finding out the cost of each product. Students will need to interview people and conduct research at the trading post and other places of business. Allow one to two days for this research.

a) Compare student findings and ask:

- "Which services are least expensive?'
- "Which services are most expensive?"
- "Which services are free?"
- "Why do you think some services are expensive, some not so expensive, and some free?"

(NOTE: Check student responses by looking for indications of skill, knowledge and difficulty. Some students may recognize that some services are free because of the Navajos' legal relationship to the federal government. Other services seem cost-free, but are actually paid for with taxes for gasoline, income, etc. If students do not recognize this, help them arrive at this conclusion.)

5) End the lesson with the following question:
- "From all that we have learned for the past few days, what have you concluded about our community?"

(NOTE: Students should be able to make a statement which suggests the main idea for this chapter.)

LESSON 4

Purpose

People in a community share many things in common, but not all people are the same. Even members of the same family have very different characteristics.

Prejudice, which in one sense involves pre-judging an individual because of his/her race, sex, religious beliefs, etc., is most often a consequence of fear and dislike of differences.

Lesson 4 introduces the concept of *difference* and the idea that differences are an important aspect in the definition of community.

Concepts

In addition to the concepts covered in previous lessons, the concept of *difference* is developed.

Difference. Because no two people are alike, they may act, dress and look different than we do. These differences are important to a community because they help the community grow and allow new ideas to be introduced.

Main Idea

This lesson reinforces and extends the main idea that a community is made of many different people.

Skills To Be Developed

The affective social skill of *acceptance of difference* is addressed in this lesson.

Objectives To Be Achieved

Upon completion of the activities in this lesson, students will be able to indicate acceptance of others who are different by identifying a difference and then describing how that characteristic is good for the community.

Materials Needed

1) collection of a variety of buttons, coins, pens or other items
2) paper, pencils
3) photographs from magazines of people from different parts of the world

Suggested Time

Allow 30-40 minutes for each activity.

Teaching Strategies and Activities

1) Gather a number of objects such as buttons, coins, pens, etc., that have some similar characteristics but some differences.[2]

   a) Divide the class into groups, and give each group a number of items. Ask them to group the items according to some similarity.

   b) Review and discuss the groupings.
      - "Why did you put these items together? What are the characteristics they have in common?"
      - "Are all the items in this group exactly the same?"

   c) Ask students to change their groupings, then ask the same questions as above. Ask:
      - "How are these objects like the members of a community?"

   d) Instruct students to read pages 91-93 in the textbook. Students' answers to the question above should indicate that, "people in a community have some characteristics that are the same and some that are different."

2) Sort a group of buttons. The group should contain buttons that are basically similar. Then sort out a button that is very different from this group, and say:
   - "These buttons (point to a group of similar buttons) live in Button Town. This button (point to dissimilar button) moves into the town. What do you think will happen?"

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[2] The NAMDC *Navajo Science Improvement Study (NSCIIS)* kits for grades 1-3 contain a number of items which can be used for this purpose.

a) Allow students time for free expression. List their responses on the chalkboard, grouping them into three categories: "Prejudice," "Acceptance," and "No Reaction." Then ask:
   - "After looking at the list and the labels, what do you think *prejudice* means?"
   - "What do you think *acceptance* means?"
   - "What do you think is better?"

3) Review the list. Using the same sets of buttons, point to one of the behaviors under "Prejudice" and ask:
   - "How do you think you would feel if you were this button (point to dissimilar button) and these buttons did this to you?"

   a) Allow each student time to write his/her respnses on a piece of paper.

   b) Collect the responses and read some of them aloud.

4) Display pictures of people from different parts of the world. Help students make a list of the ways these people are similar to themselves. Note such things as:

   - They all have hair.
   - They all have eyes.
   - They all wear clothes.
   - They are all human.
   - They all have feelings, etc.

   a) When the list of similarities is complete, ask students to make a list of differences.

   b) Compare the lists. Which is longer? Then ask:
      - "Are people more alike or more different?"

   c) Discuss with students how differences can be helpful to a community. Use the following as sample topics:

      - "How can a community use people who speak a different language?"
      - "How can a community use people who have different ideas?"

      (NOTE: As you continue with the discussion, emphasize that some differences, such as skin color or hair type, are the result of where people's ancestors came from. Hence, these differences are a result of *adaptation* to different environments.)

5) End the lesson with a writing exercise entitled: "Differences and Why They Are Important To Our Community." Student reports should include:

   - why people are different;
   - what kinds of differences exist at Rough Rock;
   - how these differences help our community grow.

Evaluation

Student reports will provide a good indication of their attitudes and understanding of differences. Look for the following types of responses:

1) People are different because of:
   a) environment
   b) background
   c) education
   d) feelings, etc.

2) Types of differences:
   a) language
   b) physical characteristics
   c) feelings
   d) clothing
   e) jobs, etc.

3) Differences can help us learn new languages, give us new ideas about clothing, food, ways to build houses, farm, produce new goods, etc.

LESSON 5

Purpose

This lesson summarizes the concepts and ideas developed throughout the course of the previous lessons. The activities, which simulate the building of a community, are designed to encourage students to draw upon the concepts, ideas, skills and knowledge they have gained thus far. By observing students' behavior, demonstration of skills and abilities to predict and/or draw conclusions, the teacher should have an excellent understanding of students' accomplishments in this course of study.

Concepts

All concepts developed thus far will be utilized by students.

Main Idea

During the previous lessons and through the readings, students have been introduced to many ideas. These will be utilized by students in making new generalizations and predictions.

Skills To Be Developed

To solve problems in this simulation, students will employ most or all of the skills they have developed in previous lessons and activities.

Objectives To Be Achieved

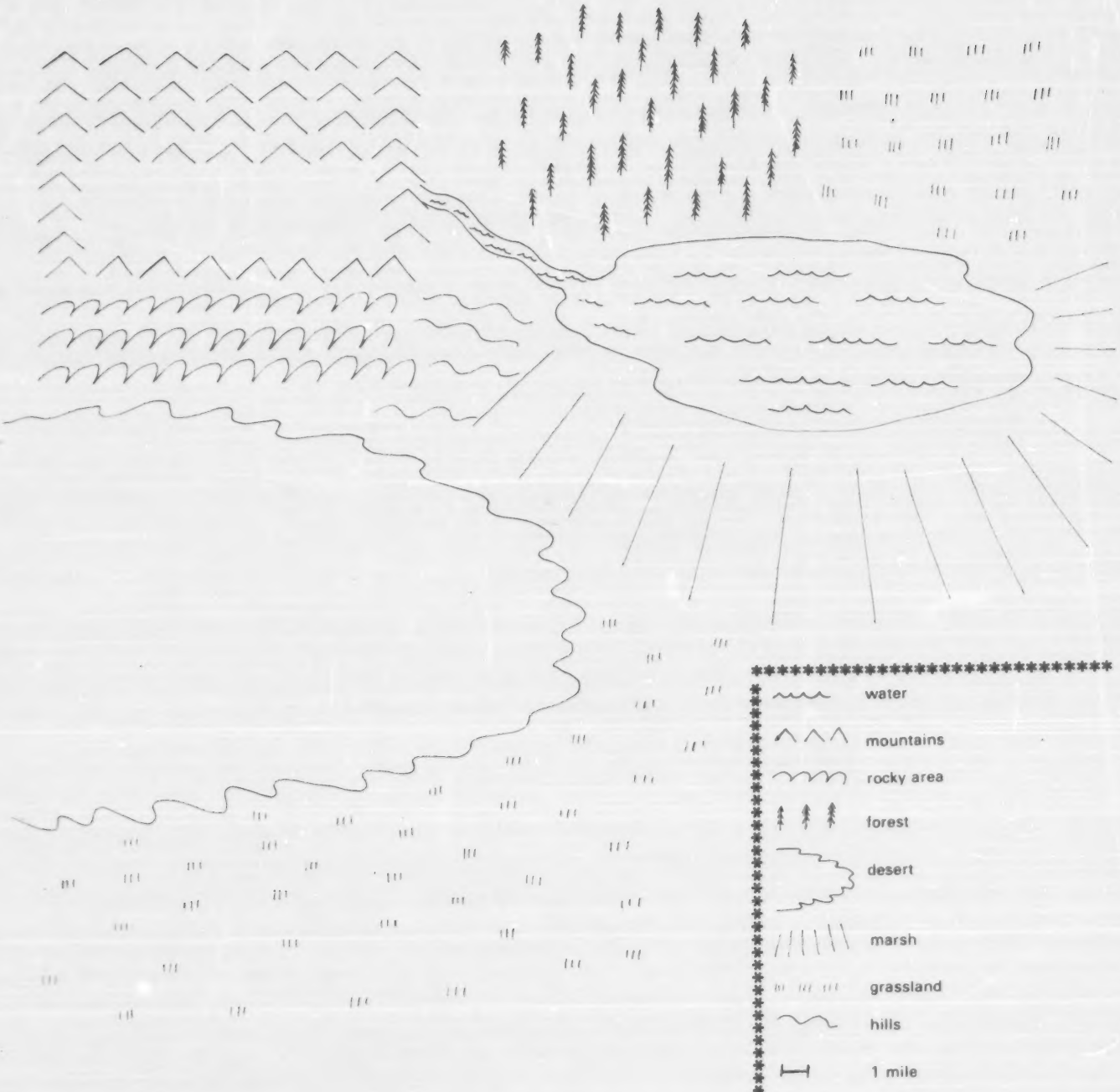
Upon completion of this lesson, students will be able to: utilize the skills, concepts, facts and ideas learned during the reading and activities for Book I, to solve a simulated problem.

Materials Needed

1) Book I photo posters
2) teacher-designed map of an imaginary planet (see Activity 3)
3) butcher paper
4) marking pens
5) plywood board, clay, glue, construction paper, and other materials for making a relief map (see Activity 6)

Suggested Time

Allow 30-40 minutes for each activity. (Activity 6 requires several class periods.)



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Teaching Strategies and Activities

1) Display all the Book I photo posters. Ask students to describe each poster. Their descriptions should include:

- where the pictured activity occurs;
- who or what is involved in the pictured activity;
- what use is being made of the natural environment;
- what interactions are occurring.

a) Ask students to classify the photographs as follows:

- This photograph shows:
  - a community activity in which community members are working to solve problems;
  - a community activity in which people are using the natural environment;
  - a community activity in which people are engaging in recreation;
  - an example(s) of something necessary for a community to exist.

(NOTE: This activity will help students recall the concepts and main ideas they have been introduced to over the entire course of study.)

2) Set up the following simulation:

- "This class represents Space Pioneers who are seeking a place to develop a community. The classroom is a spaceship and contains:

  - three types of animals;
  - tools such as saws, hammers, and nails;
  - students, who have certain skills and can perform certain jobs, provide goods and/or services.

- "Below is a planet, but you can't tell very much about it. We will have to investigate the planet to see if it has the *natural resources* we need to survive."

a) Review the meaning of *natural resources* as necessary.

b) Develop a list of the natural resources that must be present for the imaginary community to survive. Post this list, then say:
   - "Tomorrow we will send out Scouts to investigate the planet to see if these natural resources are available."

3) Before the next class, prepare a large map similar to the one on page _____ of this guide. Mount this in front of the class. Refer students to the map and say:

- "This is a map of the planet. Let's survey it to see if the natural resources are available."

a) Explain the map *key* and go over the list of natural resources.

b) When students conclude that the necessary natural resources are available, ask:
   - "Besides natural resources, what other things are needed to make a community?"

(NOTE: Students should mention human resources, homes, goods and services, etc.)

c) For each category named by students, develop a comprehensive list of objects, jobs, skills, goods, services, etc. Post this list for future reference.

4) Before class begins, assign a number to each of the items in the *human resource* list, making sure there is at least one number per student, and that every *human resource* is assigned a number. If the number of students exceeds the number of resources, assign more than one number to a resource. If the number of resources exceeds the number of students, assign the same number to more than one resource, making sure they are similar. For example, *farmer* and *rancher* could be assigned the same number. *Carpenter* and *lumberjack* could be assigned the number.

a) Refer students to the lists from Activities 2 and 3. Inform them that they are to draw a number from the pool of numbers to find out what their job is to be in the new community.

b) Once students have their jobs, they can begin to make decisions about setting up the community. Inform students that in the next class, they are going to make these decisions.

5) Before class begins, write the following questions on butcher paper or the chalkboard, where they can remain for two to three days:

- Where will the community be located?
- What will it look like?
  - Will it have streets with homes along the street?
  - Will there be farms and ranches? Where will they be?
  - Willit have businesses and industry int he community or outside of it?
  - How large in area will the community be?
  - How many people will live near the businesses and/or industry?
  - Who will make the decisions about where homes, farms, ranches, etc., will be located?
  - Will the community have utilities? Where will they be located? What other services (doctors, etc.), will there be?

(NOTE: This list is not exhaustive, but should be sufficient to give students a notion as to what decisions must be made when a nation, state or tribe decides to develop new towns and cities.)

a) Lead students in a discussion which answers the above questions. Each question may take some time to resolve, so the discussion should not be rushed. When a decision is made, write it down on the butcher paper or chalkboard.

(NOTE: As students proceed through the list of decisions, watch for consideration of the following):

- How will their decisions affect others in the community?
- How will their choices affect the natural balance of the environment? What niches might be destroyed?

- What changes will occur in the natural environment because of their choices?
- What changes will have to occur in terms of their wants if they are to protect their new environment?
- What might happen if two people disagree on something? How will disputes be settled?

6) Once decisions are made and logically defended, students should make a relief map of their new community and its environment. Instruct students to model the terrain, homes, farms, and other buildings and structures.

   a) This may end the lessons of Book I. You may wish to continue the simulation, however, by asking students to role-play the activities of the imaginary community on a daily basis. Students might buy and sell goods and services, make political decisions, expand their community, hire and fire workers, develop a kinship and/or economic system, etc.

Evaluation

Review student reports and other projects (e.g. map and chart-making), and your notes on individual student behavior during lessons and group activities. Using this data, summarize each student's progress in all the skill areas. You may wish to prepare a written test to help determine students' understanding of the factual information, concepts and main ideas in the text.

NOTES

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